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# ENVIRONMENTAL ASSESSMENT BOARD



## ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

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VOLUME: 50

DATE: Monday, August 26, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS Chairman

DR. G. CONNELL Member


MS. G. PATTERSON Member

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ENVIRONMENTAL ASSESSMENT BOARD  
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,  
R.S.O. 1980, c. 140, as amended, and Regulations  
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro  
consisting of a program in respect of activities  
associated with meeting future electricity  
requirements in Ontario.

Held on the 5th Floor, 2200  
Yonge Street, Toronto, Ontario,  
on Monday, the 26th day of August,  
1991, commencing at 10:00 a.m.

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VOLUME 50  
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B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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1 ---Upon commencing at 10:02 a.m.

2 THE CHAIRMAN: Please be seated. Ms.  
3 Couban?

4 MS. COUBAN: Thank you, Mr. Chairman. I  
5 have reviewed my notes over the weekend, and I expect  
6 to be finished certainly before the morning break,  
7 hopefully before.

8 PAUL JONATHAN BURKE,  
9 AMIR SHALABY,  
10 JULIA MARION MITCHELL,  
11 MARION ELIZABETH FRASER,  
12 LYN DOUGLAS WILSON,  
13 WILLIAM OSBORNE HARPER; Resumed.

14 CROSS-EXAMINATION BY MS. COUBAN (Cont'd):

15 Q. Panel, on Thursday we were looking at  
16 Exhibit 265, the package of interrogatories, and  
17 specifically at Interrogatory 4.32.13, and I was asking  
18 you some questions about the study that is attached to  
19 that response. The study is entitled, "Environmental  
20 Impacts of Demand Management Options."

21 If you could turn to page 46 of that  
22 exhibit -- I am sorry, page 46 of that study, to the  
23 section entitled, "Conclusions and Recommendations."  
24 Mr. Wilson, I think this question is appropriately  
25 directed to you. The consultants have made a number of  
conclusions and recommendations in this report. I'd  
like to ask you about conclusion No. 3, or the

1 conclusion that is at bullet No. 3, which states that:

2 "Ontario Hydro could encourage the  
3 development of recycling programs for  
4 HCFCs to reduce emissions of these  
5 chemicals from heat pumps."

6 Does Ontario Hydro have any plans in that  
7 regard?

8 MS. MITCHELL: A. Specifically not.  
9 However, we do work on the CSA standards...

10 THE CHAIRMAN: I am sorry, CSA did you  
11 say?

12 MS. MITCHELL: Yes. We do work on the  
13 CSA standards for heat pumps, which would also cover  
14 those things.

15 MS. COUBAN: Q. Could you be a little  
16 bit more specific about the work that you do with  
17 respect to those standards.

18 MS. MITCHELL: A. We have a standards  
19 group that sits on the committee, who is responsible  
20 for developing the standards or revising the standards  
21 for heat pumps.

22 Q. Would you turn to pages 50 and 51 of  
23 the same study, which is in the heading 4.3,  
24 "Environmental Assessment Process for Demand Management  
25 Programs." On these two pages, Ontario Hydro's



1 consultants recommend a number of steps for an  
2 appropriate -- for what they call an appropriate  
3 environmental impact analysis, and those four steps are  
4 outlined in the bullets on pages 50 and 51. The first  
5 step is described as being:

6 "For each stage in the life cycle,  
7 identify any known or suspected toxic  
8 substances or pollutants associated with  
9 the product being installed or the  
10 product being replaced."

11 The second bullet states:

12 "Determine the fate of each toxic  
13 substance and pollutant identified for  
14 each lifecycle stage."

15 Third bullet states:

16 "Determine the impact of the demand  
17 management products on other products or  
18 systems that may be affected."

19 And the final bullet says:

20 "Develop mitigative measures to  
21 ameliorate adverse environmental impacts  
22 and measures to enhance beneficial  
23 environmental impacts."

24 Is it Ontario Hydro's position that it  
25 has followed such an analysis or procedure with respect

1 to its demand management program? I'm not sure who  
2 this would be most appropriately directed to. Ms.  
3 Fraser?

4 MS. FRASER: A. Yes, at this time we  
5 have not developed the formality that is indicated in  
6 this recommendation, purely due to that we haven't  
7 taken a thorough look at this, at the program  
8 development side of things.

9 We do, in the original screening of a  
10 concept, look at the environmental aspects, as I  
11 indicated I believe on Wednesday, as part of the  
12 screening process that we go through. In addition,  
13 when the decision analysis is completed for a  
14 particular program, the cost benefit, if there are  
15 specific environmental concerns, we deal with that, but  
16 as I said, at this point we have not developed the  
17 formality indicated here.

18 Q. The report was completed in September  
19 of 1990, so Ontario Hydro has had this report for some  
20 time. I believe in your answer you told us that you  
21 haven't take a thorough look yet at those  
22 recommendations. Are you intending to take a thorough  
23 look at these recommendations?

24 A. Yes, we are.

25 Q. If we could turn to Interrogatory

1 4.32.17 in Exhibit 265. Mr. Burke, I think this  
2 question should be directed to you. The question asked  
3 by the government was:

4 "What probabilities have been  
5 attached to the forecasts of various  
6 levels of conservation and on what  
7 basis?"

8 And the response was:

9 "No probabilities have been attached  
10 to the forecasts of various levels of  
11 conservation."

12 Could you explain why not?

13 MR. BURKE: A. We did supply, in Panel 1  
14 interrogatories, a report, a specific title in the  
15 interrogatories to which was attached. So, I could  
16 provide you with it, but I don't have that right here.  
17 That explored the sensitivity of the uncertainty band  
18 for the primary load forecast to uncertainties in the  
19 conservation program impacts.

20 And the reason that we had to essentially  
21 do a sensitivity analysis in order to determine or  
22 estimate what the implications for conservation program  
23 uncertainty might be for the primary load forecast was  
24 because there is no historical experience with the  
25 penetration rates of these programs with which to work

1 in estimating uncertainty.

2 Our uncertainty methodology requires that  
3 we have some historical experience with penetration  
4 rates in order to be able to estimate the likely future  
5 uncertainty of program penetration rates. And as a  
6 result, the best that we could do was to look at  
7 sensitivity analysis to different penetration rates,  
8 different distributions of penetration rates, and take  
9 into account the relationships as well between levels  
10 of conservation or potential end-use conservation and  
11 the load forecast itself.

12 So that as one might expect, the  
13 potential induced is sensitive to the rate of growth of  
14 GDP and the turnover of the capital stock. Again, we  
15 don't have precise empirical data for that, but we  
16 could reasonably postulate some relationships. It is  
17 also sensitive to avoided costs, which may vary as the  
18 load forecast itself varies.

19 So, there are a range of factors, and  
20 essentially, because we have inadequate information at  
21 this point in time, inadequate experience essentially  
22 with conservation programs, we were not able to develop  
23 specific estimates. We simply convinced ourselves that  
24 over the range of plausible sensitivity analyses, the  
25 primary load forecast uncertainty band should be no

1 less wide than the basic load forecast uncertainty  
2 band. From the point of view of planning and this  
3 hearing, that was the major issue. Not specifically  
4 how each conservation program would do, but what the  
5 bottom line for primary load forecast uncertainty would  
6 be.

7 MS. COUBAN: Mr. Chairman, I don't think  
8 it is necessary to have an undertaking number attached  
9 to Mr. Burke's suggestion that he could get us an  
10 interrogatory. I think that I will speak to Mr. Burke  
11 about that. Thank you.

12 Q. Mr. Burke, staying with you, I'd like  
13 to ask you about a comment that you made. It is in the  
14 transcript at Volume 47, page 8525, and over to page  
15 8526.

16 THE CHAIRMAN: I am sorry, could you give  
17 me the number again please?

18 MS. COUBAN: Volume 47, page 8525 to page  
19 8526.

20 Q. Line 13 of page 8525, Mr. Campbell  
21 asked you the question:

22 "All right. And what are the  
23 eligible markets for fuel switching from  
24 electricity to natural gas in Ontario?"

25 And over on page 8526, the question was:



1 "All right. Now what is the  
2 eligible market in the residential  
3 sector?"

4 And in answer you said:

5 "Well, the candidates are space  
6 heating, water heating, cooking and  
7 clothes dryers. Essentially, we have  
8 eliminated cooking and clothes dryers  
9 because we think consumers might object  
10 to being obliged to switch in those end  
11 uses."

12 That last sentence that I read is the  
13 sentence that I'd like to ask you about. What is the  
14 basis for your conclusion with respect to the  
15 residential sector that you've eliminated cooking and  
16 clothes dryers, because you think consumers might  
17 object to being obliged to switch in those end uses?

18

19

20

21

22

23

24

25

...

1 [10:15 a.m.] MR. BURKE: A. Well, in the case of  
2 cooking, I think the the choice of a gas or an electric  
3 stove is a matter of taste and may provide different  
4 services to different consumers. It's not simply  
5 exactly the same thing being provided with a different  
6 fuel.

7 I suppose in the area of clothes dryers  
8 it's more controversial, although the technology for  
9 gas-fired clothes dryers is not as prevalent at all and  
10 people are much less familiar with it, and so we  
11 expected that there would be some resistance to that  
12 technology.

13 Q. Would it be fair to say, Mr. Burke,  
14 that those statements then are based on your personal  
15 observations and not on any studies?

16 A. No, we did not do any studies  
17 particularly to determine this result, but I think they  
18 reflect the -- this was not just my personal views, but  
19 they reflect the range of people involved in this  
20 study.

21 I don't know whether one could say we  
22 have a corporate position on this, but essentially we  
23 felt that these were relatively small potentials and  
24 because they involved a question of personal taste or  
25 technologies that had yet to be widely used...

1 MS. MITCHELL: A. I would agree with Mr.  
2 Burke's statements here. We have the 1990 RAS survey  
3 which indicates that the use of gas dryers and gas  
4 cooking appliances is relatively low.

5 Q. I'm sorry, what was the name of that  
6 survey?

7 A. The Residential Appliance Survey.

8 Q. Do we have that as an exhibit to  
9 these proceedings?

10 A. Yes, I believe it is part of the  
11 market research reference attachment to an  
12 interrogatory. It's part of the PCRD.

13 Q. So, just so that I am clear on this  
14 point, it is a conclusion that one could take as coming  
15 from that particular study; would that be fair?

16 A. I wouldn't say it's a definite  
17 conclusion but it is certainly an indicator.

18 Q. That study, Ms. Mitchell, does it  
19 state the reasons why natural gas isn't being used in  
20 those end-uses or does it just state the conclusion  
21 that it is not being used?

22 A. No, it's a statistical survey.

23 Q. So it is the latter then?

24 A. Yes.

25 Q. Thank you.

1                   Okay, Mr. Harper, a clarification point  
2     with respect to a comment that you made in transcript  
3     Volume 48, page 8605.

4                   MR. HARPER: A. Yes, I have the page.

5                   Q. Thank you. Mr. Campbell in your  
6     direct evidence asked you the question:

7                   "All right. Now, if I can turn then  
8                   to the other item you mentioned, which,  
9                   in the area of rate-related initiatives.  
10                  I would ask you to briefly describe what  
11                  you are doing in the area of time-of-use  
12                  rates."

13                  Your answer was: "In this area we  
14                  have activities going on on two fronts:  
15                  They are aimed at ensuring that the  
16                  option of extending time-of-use rates to  
17                  smaller customers is available if  
18                  required.

19                  The type of meter currently used to  
20                  bill large industrial customers for  
21                  time-of-use costs roughly \$5,000. Such  
22                  costs represents not only a financial  
23                  barrier to a utility that is interested  
24                  in implementing time-of-use rates for  
25                  smaller customers, but it also

1 significantly impacts the economics of  
2 the time-of-use rate program for those  
3 smaller customers."

4 Now, my question relates to your  
5 reference to the cost of such a meter, a time-of-use  
6 meter being \$5,000 for a large industrial customer.  
7 You didn't mention the cost for residential customers  
8 and the metering costs in that context.

9 Wouldn't it be true that the metering  
10 cost for residential customers would be significantly  
11 lower than the \$5,000, perhaps in the range of 3- to  
12 \$500?

13 A. Yes, that is correct. Actually,  
14 there is one approved meter now for metering  
15 time-of-use for residential customers and the cost of  
16 that is in the order of \$250.

17 Q. Okay. Thank you.

18 I am not sure who this question should be  
19 directed to, perhaps you, Mr. Wilson, but if it's not  
20 appropriate for you then please redirect the question.  
21 It's with respect to Ontario Hydro's existing system  
22 and the demand management potential of it.

23 Has Ontario Hydro considered its own  
24 existing system and the demand management potential of  
25 it, for example, with respect to equipment

1 improvements, transmission efficiency improvements, and  
2 generating station efficiency improvements? There may  
3 be other examples.

4 MR. WILSON: A. I can give you a general  
5 answer, that energy efficiency improvement potential of  
6 many parts of Ontario Hydro's facilities have been  
7 considered and included in the potential estimates.  
8 That includes basically all the commercial and  
9 industrial buildings that Ontario Hydro operates and  
10 the motors, pumps, fans, lighting systems, and so on.

11 The estimates of potential, to the best  
12 of my knowledge, do not include the redesign of the  
13 power or distribution systems. That is the technical  
14 engineering design of the power system structure in  
15 Ontario, that has not been included.

16 Hydro's approach to designing the power  
17 system is to minimize the long-run cost using the  
18 discounted cash flow method which is comparable to our  
19 approach to assessing demand management options.

20 Consequently our economic analysis policy  
21 internally is equivalent and should produce equivalent  
22 results to our demand management programs.

23 Q. What about with respect to  
24 transmission efficiency improvements, is that  
25 specifically being considered?



A. I have no estimate of any further improvement in efficiency that is available to the best of my knowledge. That doesn't exist.

Q. Has it been looked at, though?

A. As I just said, no.

Q. Ms. Fraser or Ms. Mitchell, this clarification question is directed at you. Could you confirm that more efficient cooling techniques in the commercial residential and industrial sectors would result in energy savings even if the techniques are not related to winter peak demand?

MS. FRASER: A. Yes, they do and that's why we include thermal cool storage as a program in the commercial sector.

MS. MITCHELL: A. And in the residential sector we also are promoting ground source heat pumps which are more efficient than a conventional central air system.

Q. Okay, thank you.

Mr. Burke, this question is directed to you and it's with respect to a question and answer in Volume 47 at page 8559. Beginning on line 5 Mr. Campbell asked you the question -- sorry.

• • •

1 [10:25 a.m.] THE CHAIRMAN: Go ahead.

2 MS. COUBAN: Q. "All right, now against  
3 all of that background, I want to come  
4 back to you for a moment, Mr. Burke, and  
5 ask you to summarize the total demand  
6 management potential that Ontario Hydro  
7 has identified for Ontario by the year  
8 2000."

9 Answer: "The overhead, page 59 of 260  
10 summarizes the total of the potential  
11 estimates that we have just finished  
12 describing. The result is 10,200  
13 megawatts. I would observe that if 100  
14 per cent of this potential were to be  
15 obtained, it would correspond to about a  
16 30 per cent reduction in Ontario Hydro's  
17 forecast of year 2000 peak."

18 What I'd like to ask you is what  
19 percentage of the growth and demand between 1991 and  
20 the year 2000 other does the demand management  
21 potential of 10,200 megawatts represent?

22 MR. BURKE: A. It would be over 100 per  
23 cent. The growth and demand is roughly 8,000 megawatts  
24 between 1990 and 2000.

25 Q. What per cent of the growth and

1 demand between 1991 and the year 2,000 does the demand  
2 management target or expectation of 5,200 megawatts  
3 represent?

4 A. About 55 or 60 per cent.

5 MS. COUBAN: Those are all my questions,  
6 Mr. Chairman.

7 THE CHAIRMAN: Thank you, Ms. Couban.

8 MS. COUBAN: Thank you. Thank you,  
9 panel.

10 THE CHAIRMAN: Mr. Poch, are you ready to  
11 start.

12 MR. D. POCH: Mr. Chairman, if I could  
13 have a few minutes. I just phoned my office a few  
14 minutes ago, told them we'd be starting early  
15 earlier --

16 THE CHAIRMAN: Perhaps they are just  
17 arriving.

18 MR. D. POCH: Oh.

19 THE CHAIRMAN: Do you want a few minutes  
20 to get organized?

21 MR. D. POCH: That would be helpful.

22 THE CHAIRMAN: We will take a ten-minute  
23 break.

24 ---Recess at 10:28 a.m.

25 ---On resuming at 10:42 a.m.

1 THE CHAIRMAN: Please be seated. Mr.

2 Poch?

3 MR. D. POCH: Thank you, Mr. Chairman.

4 Before you are several documents which we  
5 will be relying on in our cross-examination, and if I  
6 may, I'd like to have exhibit numbers for those  
7 documents, the first of which is a two-page document  
8 entitled "Outline of CEG Cross for Panel 4."

9 Perhaps by way of explanation I should  
10 say that this threatens to be a rather lengthy  
11 cross-examination. I will try to resist getting into a  
12 discussion of why any particular technology is or is  
13 not included in Hydro's menu and leave that to others  
14 and to evidence in chief. But nevertheless, there is a  
15 lot to cover just by way of program matters, and I felt  
16 that an outline may be of some assistance to the Board  
17 to understand the context of the questions.

18 THE CHAIRMAN: Number would be?

19 THE REGISTRAR: 268.

20 THE CHAIRMAN: The number of that exhibit  
21 will be 268.

22 ---EXHIBIT NO. 268: "Outline of CEG Cross for Panel  
23 4."

24 MR. D. POCH: Then, Mr. Chairman there,  
25 are three Cerlox bound volumes entitled "Background

1 Materials for CEG Cross-Examination of Ontario Hydro  
2 Witness Panel 4," and they are noted as Volume 1, 2 and  
3 3. Perhaps for ease of reference, we should give them  
4 separate exhibit numbers, Mr. Chairman.

5 THE CHAIRMAN: Volume 1 will be 269,  
6 volume 2 will be 270, and volume 3 will be 271.

7 ---EXHIBIT NO. 269: Volume 1, "Background Materials  
8 for CEG Cross-Examination of  
Ontario Hydro Witness Panel 4."

9 ---EXHIBIT NO. 270: Volume 2, "Background Materials  
10 for CEG Cross-Examination of  
Ontario Hydro Witness Panel 4."

11 ---EXHIBIT NO. 271: Volume 3, "Background Materials  
12 for CEG Cross-Examination of  
Ontario Hydro Witness Panel 4."

13 MR. D. POCH: There were some materials  
14 which managed to evade Volumes 1 through 3, three  
15 documents -- or rather I should say excerpts from  
16 documents. And again I think for ease of  
17 identification they could have separate numbers. That  
18 would be appreciated. The first would be a sheet, a  
19 table entitled, "Program Compact Fluorescent  
20 Multiretailer," and this is page 933 from Ontario  
21 Hydro's PCRD part 2 residential programs, Volume 5.

22 THE CHAIRMAN: And it will be 272.

23 ---EXHIBIT NO. 272: "Program Compact Fluorescent  
24 Multiretailer."

25 MR. D. POCH: The next is a sheet from

1 NYSEG, N-Y-S-E-G, headed "DSM 330 Residential  
2 Conservation Program."

3 THE CHAIRMAN: I am sorry, what does  
4 NYSEG stand for?

5 MR. D. POCH: It is a New York --

6 MS. FRASER: New York State Electric and  
7 Gas.

8 MR. D. POCH: New York State Electric and  
9 Gas, thank you, Ms. Fraser.

10 THE CHAIRMAN: It will be 273.

11 ---EXHIBIT NO. 273: "DSM 330 Residential Conservation  
12 Program."

13 MR. D. POCH: And finally, Mr. Chairman,  
14 excerpts from pages of the Hansard from the Ontario  
15 Legislature Select Committee on Energy from Monday,  
16 September 19, 1988.

17 THE CHAIRMAN: 274.

18 ---EXHIBIT NO. 274: Excerpts from pages of the  
19 Hansard from the Ontario  
20 Legislature Select Committee on  
Energy from Monday, September 19,  
1988.

21 MR. D. POCH: Thank you, Mr. Chairman.  
22 With the exception of those separate sheets, my friend  
23 and his witnesses have had this material since last  
24 week. I should advise those following along in the  
25 audience that apart from the materials that they would



1       likely have here in any event, the main exhibits on  
2       conservation, in the course of my examination I will  
3       likely be referring to Exhibits 73 and 74, which in  
4       future days they may wish to have on hand.

5                       Finally, Mr. Chairman, Volume 1 of the  
6       background materials contains a number of excerpts such  
7       as that one we just referred to from New York State  
8       Electric and Gas describing programs, and I have  
9       provided Mr. Campbell with a full set of the materials  
10      from those other utilities from which those materials  
11      are excerpted. It is rather voluminous, a little over  
12      a foot of materials.

13                      I have also made a set, which with the  
14      Board's permission, I would ask to be simply placed in  
15      the Board's reading room and not be given -- I don't  
16      believe it needs to be given an exhibit number. We  
17      won't be referring to any materials in it, apart from  
18      those that are already in the background materials.  
19      But I would understand that some intervenors may wish  
20      to have an opportunity to look at the context with  
21      which those materials are presented. And simply for  
22      that reason I would make them available, if that is of  
23      assistance to the Board.

24                      THE CHAIRMAN: Thank you.

25

1 CROSS-EXAMINATION BY MR. D. POCH:

2 Q. Panel, just before I go into the  
3 portion of my cross-examination outlined, we all had an  
4 opportunity to read the paper this morning, and there  
5 was coverage of a position being put forward by Energy  
6 Probe in these proceedings with respect to the concerns  
7 that can arise with utility conservation programs. And  
8 I wanted to just briefly discuss a couple of those  
9 concerns with you at the start. I think we can take  
10 the two that made it into the paper by way of example.

11 The first is a scenario where its  
12 proposed Hydro has paid \$600 to reduce an industry's  
13 electricity use. In the example, the industry gets  
14 that \$600, they also save \$600 on their electricity  
15 bill, and then it is suggested there is the possibility  
16 they could go out and engage in a less suitable form of  
17 electricity generation, make some money and not  
18 necessarily do a clean job of it.

19 First of all let me ask, then, would you  
20 simply give money to a company that said -- and that  
21 reduces its electricity conservation, without being  
22 assured that they are actually investing in  
23 conservation technologies?

24 MS. FRASER: A. No, we wouldn't.

25 Q. So, in that scenario, the company

1 would have to make an expenditure with the money you  
2 provide them, or you would make an expenditure on their  
3 behalf on the conservation technologies?

4 A. Yes. Usually we ask to see the paid  
5 invoice before we give them the money.

6 Q. And furthermore, you would only do  
7 that, I take it, if the alternative would be for  
8 Ontario Hydro to spend more than \$600 on supply?

9 A. Yes, by and large, that is the  
10 principle.

11 Q. If we had a load displacing  
12 non-utility generator, if you were assisting somehow in  
13 a load displacement program, you wouldn't also give  
14 them a grant calling that conservation if they simply  
15 used that power, would you, for their own purposes?

16 A. No, that wouldn't be considered  
17 conservation.

18 Q. And just in terms of this double  
19 recovery question, in terms of the participant, they  
20 get paid perhaps the full incremental cost in some  
21 cases of the conservation measure, and then of course  
22 they use electricity, less electricity and save on  
23 their bill, if we have widespread conservation  
24 programs, wouldn't all of those \$600 grants show up on  
25 average in people's bills and escalate the rate per

1 kilowatthour in the remaining portion of people's  
2 bills, if I may?

3 A. Yes, the rate would go up, but their  
4 bill would go down.

5 Q. The reason the bill goes down on  
6 average is because the \$600 you have spent is less than  
7 you would otherwise have to for supply, is that  
8 correct?

9 A. Because they have saved electricity.

10 Q. Yes.

11 Okay, now the other example that  
12 energy -- at least that the Globe and Mail picked up on  
13 this morning was the concern that, for example, in a  
14 compact fluorescent handout program, that bulb may be  
15 installed somewhere where it is not cost effective  
16 because it is not in a light that is on very much. Is  
17 that a concern?

18 MS. MITCHELL: A. Well, at this time we  
19 don't have a handout program for compact fluorescents.

20 Q. Let me jump to the bottom line. In a  
21 well-designed program, you could put controls in place,  
22 either by you yourselves installing, or through third  
23 parties, which would ensure that the bulbs ended up in  
24 places which were high use places? Is that true?

25 A. Yes, that is true.

1 Q. And that would offset that concern in  
2 the main?

3 A. Well, in addition to that technique,  
4 we also use information which directs customers to the  
5 appropriate use.

6 Q. Right. Now finally pervading those  
7 two concerns is the underlying, perhaps, fear or  
8 distrust. Fear that there is a conflicting motivation  
9 on the part of Ontario Hydro, maybe not on individuals,  
10 but in a corporate sense, and it is a question of the  
11 wolf in the hen house; how can we be assured that you  
12 will design your programs right and not see wastage.

13 Can I ask you, is this a concern that  
14 arises whenever we have a monopoly energy company, and  
15 the same would hold true for, for example, private  
16 sector gas monopolies in Ontario, to the extent it is a  
17 concern?

18 MS. FRASER: A. Yes, I haven't read the  
19 article in the paper, so I am at a little bit at a  
20 loss.

21 Q. Would you agree whenever there is a  
22 monopoly there is -- there can be a concern that the  
23 monopoly can be abused?

24 A. Yes, that's why we have regulatory  
25 authorities over monopolies.

1 Q. You have foreseen my somewhat obvious  
2 suggestion, thank you.

3 MR. D. POCH: Mr. Chairman, I should just  
4 add, I don't want to imply that my clients don't share  
5 some of the concerns expressed by Energy Probe. The  
6 purpose of our cross will, in large measure, be to  
7 suggest solutions that Hydro may or may not have yet  
8 pursued.

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1 [10:55 a.m.] Let me begin then with a question about  
2 the impact of the 1500 megawatts you have suggested as,  
3 if I understand it correctly, that is the net impact of  
4 what you view as the most likely scenario for standards  
5 in fuel switching as a result of recent government  
6 direction.

7 Am I correct in understanding, Mr. Burke,  
8 that that 1500 megawatts is as I have described it, it  
9 is the net change after you have backed out duplication  
10 with existing programs and that the 1500 is all  
11 attributable to your presumptions about standards  
12 beyond those already forecast and fuel switching beyond  
13 that already forecast?

14 MR. BURKE: A. We certainly have  
15 attempted to avoid as much double counting as we can,  
16 and we have explained the extent to which we have taken  
17 steps to avoid double counting in the documents. I  
18 can't guarantee that there isn't a little bit left in,  
19 but the intention was certainly to make it a net impact  
20 on the load forecast.

21 As far as how the extra 1500 megawatts  
22 would come about, yes, we are anticipating that the  
23 government will act on some of its statements about  
24 setting aggressive standards, and that as it has  
25 included fuel switching in the, I guess, the draft of

1 the Power Corporation Act that's before the  
2 Legislature, we are putting forward a scenario in which  
3 some mandated fuel switching occurs. Whether on the  
4 fuel switching side the government is actually going to  
5 mandate fuel switching is something that we can only  
6 speculate on at this point, but this is one way that we  
7 could achieve the 1500 megawatt net increase in EEI and  
8 fuel switching.

9 Q. And I am right in understanding that  
10 the driver behind the 1500 are those two assumptions  
11 with the netting out?

12 A. Essentially, yes. In the areas where  
13 standards do not apply and where fuel switching is not  
14 applied, Hydro feels that the attainable EEI that was  
15 estimated previously is and was an estimate of the  
16 maximum it felt it could obtain, and so that the  
17 increment above and beyond the 2,000 megawatts cited  
18 previously can be attributed to fuel switching, not all  
19 due to government programs though. There was about,  
20 you remember in Case A, about 6- or 700 megawatts  
21 associated with Ontario Hydro programs in the fuel  
22 switching area.

23 So, it's fuel switching, not necessarily  
24 government driven, and standards for efficiency gain  
25 and some end uses.

1 Q. I am just trying to understand to be  
2 perfectly clear, that apart from the impacts of new  
3 either mandate-presumed or program responses to the  
4 government initiative and the government initiatives on  
5 standards, if we were to back that out we would still  
6 be at 2,000 for 2,000. You haven't change that with  
7 the announcement of the new funds. It's 2,000 for  
8 2,000 and then you have had to net some of that out  
9 because, of course, there is overlap with the fuel  
10 switching standards.

11 A. That's correct, as long as you are  
12 not implying that this depends on a particular  
13 government policy initiative as far as fuel switching  
14 is concerned.

15 The scenario that we provided reflected  
16 an extra few hundred megawatts associated with mandated  
17 residential fuel switching, but that's something which  
18 was just a scenario.

19 Q. All right. We will return to fuel  
20 switching a little later.

21 I would like to discuss with you the  
22 principles at play in your demand management plan.  
23 First of all, can we go to Exhibit 74. This is the  
24 Demand/Supply Planning Strategy, March '89, Report  
25 666D SP. Can you turn to page 6.

1 Mr. Chairman, the version I have from  
2 Hydro is an orange-yellow, cerlox-bound version.

3 On page 6 we see five, what are described  
4 as five basic thrusts, and just to paraphrase, they are  
5 high priority to maintaining the existing system,  
6 giving top priority is the phrase, to DSM, high  
7 priority to non-utility generation and cogeneration,  
8 high priority to the orderly development of hydraulic  
9 and keep open the options for major supply.

10 Can I ask, Mr. Wilson, was the choice of  
11 the wording "top priority" for DSM rather than high  
12 priority intentional, first of all, Mr. Shalaby?

13 MR. SHALABY: A. Yes.

14 Q. Can I ask, then, why it was you were,  
15 until the government intervened, spending a quarter of  
16 a billion dollars on nuclear engineering prior to a  
17 approval that has now been, we are told,  
18 cost-effectively transferred to conservation?

19 A. Well, that's consistent with item  
20 five on the list that you read. Item 5 says Hydro will  
21 keep open the options for major new supply. And the  
22 environmental work and pre-engineering work on supply  
23 is a means of keeping the option open.

24 Q. Is that option now foreclosed, that  
25 supply option?

1 A. It's not as open as if you were doing  
2 engineering in environmental work.

3 Q. I take it that DSM has been given  
4 greater priority as a result of the transfer of those  
5 funds?

6 A. I don't know that it is given greater  
7 priority. It's given money that it didn't have before.  
8 Priority was always there. It's increased funding in  
9 the early '90s.

10 Q. Your evidence, I take it, the panel's  
11 evidence is that this is a cost-effective expenditure,  
12 the 240-million on the conservation programs, Mr.  
13 Wilson, Ms. Fraser?

14 A. I think the government  
15 cross-examination touched on that. The question was,  
16 \$240-million, how was that money being spend in demand  
17 management, and Mr. Wilson responded to that. And then  
18 there was a question to me as to what does that do to  
19 the supply side and did anybody do a cost benefit  
20 analysis to show whether was that was a cost effective  
21 transfer of money, and we answered that.

22 Q. Well, Ms. Fraser, Mr. Wilson, is the  
23 240 being spent on programs which meet the total  
24 customer cost test?

25 MS. FRASER: A. Yes, they are.



1 Q. So, by definition then, it's cost  
2 effective relative to avoided cost?

3 A. I guess what we are not totally sure  
4 of is whether or not some of those funds might have  
5 been better spent a little later than sooner in the  
6 sense that there is a lot of pipe to lay in demand  
7 management and we are rushing some of the  
8 infrastructure things a little bit faster than we might  
9 want to.

10 Q. But we are not spending that money on  
11 any programs that aren't cost-effective relative to  
12 avoided cost?

13 A. All the programs are of cost  
14 effective.

15 Q. And this would be avoided cost that  
16 was generated using the scenario before the change to  
17 the nuclear program timing, right, Mr. Shalaby?

18 MR. SHALABY: A. Yes.

19 Q. And if anything, Mr. Shalaby, the  
20 delay in the nuclear timing that results because of  
21 this transfer of funds, should make conservation even  
22 more valuable to cover that interim gap?

23 A. Yes. It doesn't say that the  
24 transfer of money still is or is not cost effective. I  
25 don't know the answer to that. Whether the gain on the



1 demand side offsets the damage done on the supply side,  
2 I have no idea about that.

3 There is damage done on the supply side,  
4 there is gain done on the demand side. To what extent  
5 they balance each other, what I indicate is that we  
6 haven't done a detailed assessment of that.

7 Q. Let's make sure I haven't  
8 misunderstood. I had understood that apart from  
9 whatever added costs you may face if you ultimately go  
10 nuclear because of the delay, compared to the nuclear  
11 plan and the supply plan prior to that, this investment  
12 of 240-million on that yardstick is an effective  
13 investment on the conservation side?

14 A. It is.

15 Q. You agree with that?

16 A. It is.

17 Q. And if we had interpreted the phrase  
18 "top priority" to DSM earlier, prior to the government  
19 intervention, if you had interpreted that, as, for  
20 example, meaning you should be doing more  
21 pre-engineering of conservation and less of nuclear,  
22 that would have been a change in the plan, it would  
23 have changed the shape of the plan as we have seen the  
24 government's intervention has ultimately changed the  
25 shape of the plan; is that fair, Mr. Shalaby?

1 A. This sounds more like if it was the  
2 only priority. Top priority doesn't necessarily mean  
3 it's the only priority.

4 Q. If it had been interpreted all along  
5 the way the government has imposed an interpretation,  
6 if you will, you would get a different plan or a  
7 different result in the real world. I guess this is  
8 trite, but...

9 A. Yes.

10 Q. So, it's fair to say that your  
11 setting of priorities, for example, there is some  
12 choice involved. It's a matter of choice, is the  
13 phrase some of us have coined, that affects the outcome  
14 in the real world.

15 A. Yes.

16 Q. Now, those were called five basic  
17 thrusts.

18 If you go in Exhibit 74 to page 11, there  
19 is a schematic there where there is reference to  
20 general strategic principles, and I take it that these  
21 are the ones listed on page 15?

22 A. Yes.

23 Q. All right. We will come back to talk  
24 about some of these when we get to Panel 11 because, of  
25 course, they impact on the mix in the plan. But is it

1 fair to say that some of them do indeed impact on the  
2 DSM component of the plan directly; for example,  
3 putting reliability on the list as paramount might mean  
4 you would pass over some untested demand management  
5 options as unreliable; is that fair?

6 A. Pass over meaning?

7 Q. Not included in the DSM plan.

8 A. I think we have seen examples of  
9 things that were thought to be unreliable and were not  
10 included until we were convinced that they are reliable  
11 enough that it will provide good service.

12 Q. So, you are agreeing with just my  
13 general observation that these general strategic  
14 principles are at play in your selection of the DSM  
15 plan components.

16 A. These were meant more to be a guide  
17 to the integrated planning, not necessarily just the  
18 demand side management component.

19 Q. So, what you are telling me is they  
20 go beyond the demand side management component but they  
21 also affect the demand side management component?

22 A. Yes.

23 Q. Is unreliability different than  
24 uncertainty about an option's likely performance?

25 A. Yes.

...

1 [11:10 a.m.] Q. And if uncertainty was an issue,  
2 would you agree that, for example, there is, quite  
3 apart from operating reliability on the supply side,  
4 let's take nuclear as an example, there are outstanding  
5 uncertainties about such things as cost and waste, for  
6 example, in a nuclear program.

7 A. There are.

8 Q. So, can we say about these strategic  
9 principles that your choice of the strategy elements  
10 and the relative weighting of these elements would  
11 impact on the particular DSM program that you propose?

12 A. Yes, the strategy will, as Mr. Wilson  
13 testified, contribute to the formulation of the  
14 Demand/Supply Plan, including its demand management  
15 component.

16 Q. Then we move from general strategic  
17 principles to page 16, where we say "General Demand  
18 Supply Strategies." Again, these apply to both supply  
19 and demand, and thus to the DSM program, some of them  
20 explicitly talk about the mix of the two, of course,  
21 but if we see take, for example 2.1.2, you include the  
22 social environmental cost that you actually have to  
23 incur. That would impact on the DSM program, to the  
24 extent you have to incur such costs?

25 A. Yes.

1 Q. And it would impact both to the  
2 extent you have to incur it on the demand side and to  
3 the extent you can avoid incurring it on the supply  
4 side?

5 A. Yes.

6 Q. It affects your avoided cost?

7 A. Right.

8 Q. And indeed it is true that your  
9 avoided cost does include some actual cost to meet  
10 environmental and social requirements, and that has  
11 raised the avoided cost and thus the number against  
12 which you screen for economic potential of DSM?

13 A. Yes.

14 Q. Now what happens if this Board  
15 chooses to impose new costs on you by way of a  
16 condition? Say it imposed a condition that you limit  
17 radiation exposures to a fifth or a tenth of what your  
18 current target is, in light of this new international  
19 consensus we have heard about on the harmfulness of  
20 radiation. I don't ask you to comment on that. I  
21 should perhaps pick a less contentious example, but  
22 take it as a hypothetical.

23 Would that be a requirement that would  
24 raise avoided cost and thus the level, the cut-off  
25 point for economic potential?



1 A. If the requirement raises the cost of  
2 supply, not all of these requirements will necessarily  
3 raise the cost of supply, but if they do, then the  
4 avoided cost will rise and the cut-off point will move.

5 Q. And to the extent that there are some  
6 technologies out there or greater use of technologies  
7 that you have already captured out there that presently  
8 cost more than avoided cost that don't pass the total  
9 customer cost test, the economic potential will have  
10 increased?

11 A. Yes. I want to remind you of what  
12 Mr. Burke also indicated. And that is there isn't a  
13 very large pool of resources that exceed avoided cost  
14 by very much.

15 Q. But to the extent that however large  
16 that pool is or small that pool is?

17 A. Theoretically, yes, but practically  
18 the pool is an infinite, and in our experience that is  
19 the case.

20 Q. So, there may be change, and you are  
21 saying it is not going to be linear?

22 A. Yes. That's sophisticated for that,  
23 yes.

24 Q. I'm prepared to treat you as a  
25 sophisticated analyst.



1 A. Okay.

2 Q. So, your choice of that, of what  
3 environmental and social costs to include in avoided  
4 cost has directly impacted on the level of DSM in the  
5 plan.

6 A. What's the question there?

7 Q. Your choice of what environmental and  
8 social costs to include in avoided costs has directly  
9 impacted the level of DSM in the plan for the reasons  
10 we have just spoken of?

11 A. Yes. What I'm pondering on here is  
12 whether it is a choice. It is legislative  
13 requirements, and it is corporate policy in certain  
14 matters. So, there is an element of choice, there is  
15 an element of legislation.

16 Q. All right, some of it wasn't your  
17 choice.

18 A. And those requirements affect demand  
19 management.

20 Q. Yes, you have agreed with my premise,  
21 and you are telling me some of it isn't your choice.

22 A. That's right.

23 Q. And some of it is your choice.

24 A. That's right.

25 Q. Then we get to specific demand side

1 management principles, and they start at page 17 of  
2 this exhibit, and they go through right to page 20, and  
3 we will get into a few of these in detail as examples  
4 of where we allege you have gone wrong, but I note, if  
5 we go to Exhibit 25, which is the explanation of the  
6 DSM component of the plan, if you could turn, in that  
7 exhibit, to the first page of the introduction, which  
8 is -- although it doesn't have a number on it, it is  
9 actually page 1 of the body of the document. There are  
10 three principles that have been singled out in the  
11 paragraph third from the bottom. Perhaps I will read  
12 it into the record, for those that don't have it here.

13 "The elements of the demand  
14 management strategy are specified in the  
15 demand/supply planning strategy. The  
16 demand management strategy is that 1)  
17 demand programs be implemented to the  
18 full extent that they are cost effective  
19 compared to Ontario Hydro supply options,  
20 2) customers who benefit from the  
21 programs be required to make significant  
22 contributions, and 3) the programs be  
23 acceptable to customers in general."

24 And just so we can tie this together, the  
25 first of those would be, that is implement to the

1 extent of cost effectiveness, that would be the same as  
2 strategy element 3.1.

3 And as we refer to these strategy  
4 elements, I should advise everyone that they are  
5 reprinted in Appendix A of the "Balance of Power,"  
6 Exhibit 3, and that is a convenient place to see them  
7 all.

8 A. It is.

9 Q. And the second one that you single  
10 out is "customers who benefit from programs be required  
11 to make significant contributions." I take it that is  
12 a paraphrasing of principle 3.11.2?

13 A. Yes.

14 Q. And the third one, "programs be  
15 acceptable to customers in general," could you point me  
16 to the -- that would be 3.11.3, is that right?

17 A. Partly that and partly things to do  
18 with customer satisfaction and meeting customer  
19 requirements, yes.

20 Q. Can I take it from the inclusion of  
21 these in the introduction in Exhibit 25 that these were  
22 the dominant strategy elements that acted as  
23 determinants of the DSM program design?

24 A. Well, that document was not about  
25 program design.

1 Q. All right. Then these are the  
2 dominant strategy elements affecting the demand  
3 management plan.

4 A. This document is about determination  
5 of potential and the sketching of the plan, you are  
6 quite right. So, I wouldn't say these are any more  
7 dominant than the rest of them. There are a large  
8 number of strategy elements to do with demand  
9 management. They are mentioned in many places. This  
10 was highlights of what certain financial and cost  
11 related measures that relate to the demand management  
12 plan are put here again.

13 Q. Well, a number of points you have  
14 made. First of all, it reads, "The demand management  
15 strategy is:" 1, 2, 3. So, who wrote this exhibit?

16 A. Staff and assistant planning  
17 division.

18 Q. Is it fair to say that they  
19 interpreted those three as being key determinants?

20 A. They are significant determinants,  
21 yes.

22 Q. Now you said it doesn't affect  
23 programs per se, and I take it that just follows  
24 naturally from the fact that the process you have gone  
25 through is first to look for economic potential, where

1 you make some reference to what has been obtained  
2 elsewhere, and then you go on to obtainable and so on.  
3 And really, you haven't gotten down, and perhaps, Mr.  
4 Wilson, you could help us here, you don't get down to  
5 fine detailed program design until it has taken a  
6 couple of years, fair? At the time that this exhibit  
7 was done and that the strategy was being formulated,  
8 you weren't into detailed program analysis by any  
9 means.

10 MR. WILSON: A. Yes, that's correct.

11 MS. FRASER: A. We started with  
12 incentive programs in January 1989.

13 Q. So, there were a couple of programs  
14 which led off.

15 A. That's right. We are using the basic  
16 principles in the draft DSPS.

17 Q. And your program development and  
18 design is still an evolving process.

19 A. Absolutely.

20 Q. So, these three principles that were  
21 at least highlighted in the introduction there, they  
22 all act as limits on the amount of DSM in the plan?

23 MR. SHALABY: A. Yes.

24 MS. FRASER: A. I'd certainly agree with  
25 that, but I think the overriding limit to the amount of



1 DSM that is in the plan in terms of the 2,000 by 2,000  
2 are not these constraints. It is the amount that we  
3 think we can get, just actually going out and being  
4 able to get our hands on it and getting it.

5 Q. I understand that, but that has to do  
6 more with obtainable than economic potential, isn't  
7 that fair?

8 A. Oh, that's correct. If you are  
9 talking about economic potential in the plan, yes.

10 Q. Right. And--

11 MR. WILSON: A. I think perhaps the  
12 first of the three elements that you read is the one  
13 that represents no limit whatsoever. It is a  
14 paraphrase of strategy element 3.1, which says that we  
15 will aggressively pursue electrical efficiency to the  
16 full extent that they are economic. And I don't see  
17 that as the only constraint there is that they be  
18 economic.

19 Q. All right. What you seem to be  
20 telling me is that that hasn't, in practice, been a  
21 constraint.

22 A. Well, we have already explained that  
23 it is a constraint. Not a serious one, because very  
24 few options have been eliminated.

25 Q. But it is a limit.



1 A. Yes, it is.

2 Q. And there are technologies you have  
3 not looked at or screened out or programmed approaches  
4 that don't pass the total customer cost test. Some you  
5 just don't even look at, right?

6 MR. BURKE: A. Some we don't have  
7 adequate information to screen in the first place.

8 Q. Fine, and there are some you don't  
9 look at, because you presume they won't pass the  
10 customer cost test, right?

11 A. I suppose that must be based on some  
12 information or lack of information.

13 Q. Or presumption. I think that is the  
14 word you used, Mr. Burke, to talk about air  
15 conditioners. You presumed that without being able to  
16 impact significantly on winter peak, they just wouldn't  
17 pass.

18 A. I think that comes from some  
19 experience in the use of the test.

20 Q. All right. So it has acted as a  
21 limit, although you may not be able to provide us with  
22 an analysis listing all the technology and programs you  
23 have rejected, because those things tend to be done  
24 less formally. They are simply not considered, you  
25 presumably don't pass?

1 MS. FRASER: A. No, all the program  
2 concepts that we have screened are in the PCRD, the  
3 Program Concert Reference Document.

4 Q. Are there any in there that were  
5 rejected because they don't pass?

6 A. There is -- I'm trying to think. I  
7 don't think there are any commercial ones. I believe  
8 there was one with respect to fuel switching and  
9 pipeline expansions that didn't pass. I can't remember  
10 if there is any other residential ones.

11 Q. And isn't it fair to say, though,  
12 that there would be a number of technologies or levels  
13 of program activity or levels of technological  
14 targeting that you simply wouldn't throw up as  
15 candidates for screening, because you, in your wisdom,  
16 would see they are not close to the line?

17 A. As I indicated, there are four  
18 reasons why we rejected. If we do reject a concept, it  
19 is for cost benefit, technical feasibility, and then  
20 marketplace considerations and environmental  
21 considerations. I think what we are dealing with here  
22 is an issue of technical feasibility, which, you know,  
23 there is still a lot of uncharted territory, and we are  
24 working on charting as quickly as we can.

25 Q. But even within technical

1 feasibility, there are some you wouldn't propose to go  
2 through the screening, because you would assume,  
3 perhaps quite rightly, from the information you have  
4 they are not cost effective, they are not going to  
5 pass, so don't waste your time going through formal DSS  
6 analysis.

7 A. Well, just as a case in point,  
8 thermal cool storage was originally assumed to be in  
9 that kind of category. And, I mean, we said no, let's  
10 look at it, let's see what happens, and it we did, and  
11 it was one of our first programs that we put on the  
12 street. So, I don't think our immediate sort of first  
13 assumptions are necessarily the ones that any of us  
14 ultimately live with, because no one program designer  
15 or whatever is making the ultimate decision. So, it is  
16 not just one person's presumptions, it gets tested in a  
17 broad array of places.

18 Q. I really didn't think this was such a  
19 hard question. I was just asking, there are  
20 technologies out there which don't show up in the PCRD,  
21 which could save electricity, which you've screened out  
22 informally, perhaps, because they are just not cost  
23 effective, or because you just haven't looked at them.

24 MR. BURKE: A. I think in various places  
25 there are lists of technologies that we have excluded,

1 and for a variety of reasons. I think what's a little  
2 awkward in this discussion here is that sometimes  
3 you're talk about potential and sometimes we're talking  
4 about programs, and different kinds of information may  
5 be required for each of the two assessments.

6 Q. On my computer across the street in  
7 my office, if I don't touch the keyboard for five  
8 minutes, the monitor goes off. It's a little piece of  
9 software someone gave me. That's not something you  
10 have looked at for technological potential or economic  
11 potential, it is just a miscellaneous example, you  
12 can't cover everything at this point, fair?

13 A. It is probably a natural measure, and  
14 we don't try to quantify all of those, because they are  
15 so difficult to do.

16 Q. And a lot of your programs are about  
17 increasing the level of penetration, what for some  
18 people will be natural and others they won't do? You  
19 haven't covered that particular technological example.

20 MS. FRASER: A. No, that's what I said,  
21 there is lots of uncharted territory. But we are  
22 putting out a brochure soon to give people lots of  
23 advice on their office equipment.

24 Q. All right, so just in terms of these  
25 various strategies which we have agreed can be limits

1 on DSM, I take it, Mr. Wilson, when we get out of  
2 system planning and we get past load forecast and you  
3 are sitting down and looking at your menu and looking  
4 at your program design, you used the phrase touchstone,  
5 these are the touchstone by which you use in program  
6 design, is that fair? You refer back to these as  
7 guiding principles to decide what and how far to go  
8 with particular measures or with incentives, for  
9 example.

10 MR. WILSON: A. Yes, those are the  
11 guiding principles that, as is fairly clear now, were  
12 laid out through a discussion process with a whole lot  
13 of people with different points of view, through '86  
14 through '88. I don't think we are wedded to strict and  
15 literal adherence to those principles, as we gain  
16 experience in this business. But as I said earlier,  
17 they are a touchstone. You come back to that and say  
18 is what we are planning to do still consistent with  
19 that.

20 One of these days we are going to run up  
21 against cases where that is not going to be the case,  
22 and we'll have to reconsider those fundamental  
23 strategies. But to date, that is the basis that we go  
24 back to that, does this still make sense.

25 MR. D. POCH: Mr. Chairman, I don't know



1 if you were intending to take a morning break this  
2 morning or not.

3 THE CHAIRMAN: We were absolutely  
4 intending to take a morning break. And if this is the  
5 time to do it, we will do it now.

6 MR. D. POCH: It is.

7 MR. B. CAMPBELL: Mr. Chairman, just as  
8 we rise, I wasn't sure if Mr. Wilson had actually  
9 finished that answer. So, if when we come back, if he  
10 could be asked that question. If my friend hadn't  
11 asked for a break, I noticed he and Mr. Burke were  
12 speaking, I didn't know whether he was finished or not.

13 THE CHAIRMAN: He can finish it after the  
14 break.

15 MR. B. CAMPBELL: Fine, thank you.

16 ---Recess at 11:30 a.m.

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25 ...



1 ---On resuming at 11:45 a.m.

2 THE CHAIRMAN: Please be seated.

3 Mr. Poch.

4 MR. D. POCH: Thank you, Mr. Chairman.

5 Q. Mr. Wilson, did you want to complete  
6 your answer?

7 MR. WILSON: A. The question you asked  
8 is whether we are still working to the principle that  
9 customers who participate and receive direct benefits  
10 should provide a substantial contribution to the cost,  
11 and the answer is generally yes.

12 That is not to say that incentives don't  
13 sometimes cover the full incremental cost because the  
14 customer doesn't benefit directly. In the case of  
15 government or low cost housing, the owner of the  
16 buildings get the benefit, I should said the tenants  
17 get the benefit, but they are not the owner of the  
18 building.

19 Q. All right. Let's look at some more  
20 specific examples to see how these principles can act  
21 as limits on DSM. Could you turn up background  
22 materials, Volume 2, which is Exhibit 270, page 38.  
23 That page, headed "Draft DSPS Supplementary Document F,  
24 Continued", is an excerpt from the draft DSPS analysis  
25 of representative plans which I have a hunch is a

1 separate number in these proceedings. In any event,  
2 the section there, 2.1 demand options, in the third  
3 paragraph suggests there are two levels of DSM  
4 incentives that were considered for inclusion in the  
5 various plans that were originally developed. Perhaps I  
6 should read that into the record.

7 With regard to efficiency  
8 improvements, options with standard costs  
9 less or equal to coal-fired generation  
10 were used. Two levels of incentives,  
11 moderate and high, and hence two  
12 alternative levels of contribution to  
13 load reduction are assumed.  
14 And then it goes on.

15 The two different levels are designed  
16 to cover the range of possibilities.  
17 Under the high case, incentives would be  
18 provided up to the full cost of the  
19 efficiency improvement measures. These  
20 costs applied over a reduced total system  
21 demand would raise the customer's average  
22 rates more than for the alternative  
23 supply option, although total customer  
24 service costs would be lower. The  
25 moderate case is thought to be about the

1 level of incentive that could be offered  
2 without rates increasing anymore than  
3 they would have for implementation of the  
4 lowest cost supply option.

5 Now, first of all, just to clarify the  
6 last sentence or the last couple of sentences there.  
7 That's essentially a description of the threshold  
8 level. The distinction between the 50 and 100 per cent  
9 there for incentives was a description of the threshold  
10 level of incentives that would meet or not meet the no  
11 losers or the non-participants test, or what is now  
12 called the RIM test, Mr. Wilson?

13 MR. BURKE: A. Yes, the last one.

14 Q. And it was the 50 per cent,  
15 approximately 50 per cent number which was the number  
16 that was suggested would be the point where if you went  
17 further you would trip over that test?

18 A. I don't think there was a number for  
19 that.

20 Q. Well, I had just read this, it said,  
21 the moderate case is thought to be about the level of  
22 incentive that could be offered without rates  
23 increasing, and so on. So that whatever that moderate  
24 level was, that was the level that was thought to be  
25 where you would bump into the no-losers test?

1                   A. I must admit, it was a long time ago  
2                   that we ever looked at things this way and I have  
3                   forgotten exactly what was implied at the time. We  
4                   certainly don't look at it this way anymore.

5                   Q. I understand that's your position. I  
6                   am just asking you to read along with me to understand  
7                   how these strategies have evolved.

8                   Would you agree with me that at that time  
9                   that moderate scenario was that level?

10                  MR. SHALABY: A. It was intended to be  
11                  in that category.

12                  Q. All right, thank you, Mr. Shalaby.

13                  Just to have it all in one place here.  
14                  The no-losers test would be satisfied if you avoided  
15                  offering any incentives that would result in ratepayers  
16                  who don't participate in a DSM incentive program, from  
17                  paying more for their electricity than they would in  
18                  the absence of any DSM incentives. I think I have  
19                  probably put double negatives in there and made it  
20                  difficult.

21                  A. But it captures the spirit.

22                  Q. Okay. And indeed, the hundred per  
23                  cent or the high incentive scenario there is described  
24                  as while raising some rates, lowering costs. So, I  
25                  take it that the high incentive scenario at that time

1 would have met the total customer cost test?

2 A. That would be the intent, yes.

3 Q. And if you go to figure 2.1 of that  
4 exhibit, which is page 39 of Exhibit 270, you can see  
5 these two scenarios set out in the table. And am I  
6 understanding this correct that the no-losers scenario,  
7 with 50 per cent level incentives, would reduce load  
8 growth by 10 per cent and would affect the retrofit  
9 market, the existing load, by 550 megawatts, whereas  
10 adherence to the principle of lower total customer  
11 service cost offering up to 100 per cent incentives,  
12 would give you double the impact in the new market and  
13 quadruple the impact in the retrofit market?

14 A. I think that data is correct, you are  
15 reading it right.

16 What may be a good companion to that  
17 table is the last paragraph on your page 38. It says:

18 Ontario Hydro recognizes that its  
19 information on demand management is poor.  
20 The estimates of potential shown in  
21 figure 2.1 are very uncertain. This is  
22 recognized in the analysis, various  
23 levels of success being considered.

24 So, I think yes, this is the best  
25 snapshot to come up with the mid-80s in absence of the



1 extensive experience that is required to make these  
2 judgments and these plans, so...

3 Q. So, you are pointing out the caveats  
4 there, but the spread is quite significant. These are  
5 pretty robust results, I think is the expression we use  
6 in these hearings.

7 A. The caveat is a pretty heavy duty  
8 one.

9 It's an estimate made without the  
10 experience and knowledge of demand management that we  
11 have today. This is information based on five-, six  
12 years ago type of knowledge of demand management in  
13 Ontario and it is no where near as extensive as it is  
14 today.

15 Q. All right.

16 A. In fact, Ms. Fraser spent a good  
17 portion of time explaining why is it incentives are  
18 not, in fact, the key variable or, in fact, as  
19 important a variable as once thought. And it seems  
20 that we ourselves adopted that position with regard to  
21 incentives. We thought incentives can do everything.  
22 If you go halfway, you do something; if you go full way  
23 you do something different.

24 It's just a representation of our  
25 knowledge five-, six years ago, that's all.



1 Q. Right. In fact, that document dates  
2 from October '87, that's about a year before the  
3 balance of power was sort of set in place?

4 A. No.

5 Q. Or the target, I'm sorry, the target  
6 of 2,000 in 2000 was set in place?

7 A. When a document is dated '87, much of  
8 the time it's starting to be written a period before  
9 that. Information in it goes before that as well. So  
10 the information is vintage '86, I think.

11 Q. When was the target of 2,000 in 2000  
12 set?

13 A. I don't recall exactly, but it's  
14 towards the late '80s, I would think.

15 Q. And it hasn't changed since?

16 A. Has not. Until what Mr. Wilson  
17 announced in this hearing.

18 Q. That's having to deal with fuel  
19 switching standards, though.

20 A. That's right.

21 Q. Let's just go back to the context  
22 here, we are talking about principles. The choice at  
23 that time between keeping in place a no-losers test and  
24 abandoning a no-losers test was thought, at least then,  
25 to be a pretty dramatic example of how DSM potential is

1 impacted by your choice of strategy elements, strategy  
2 constraints.

3 MR. WILSON: A. I think it is a  
4 description of how we thought the attainable demand  
5 management would be impacted by the level of  
6 incentives, not the potential.

7 Q. All right. Mr. Wilson, would you  
8 agree that -- you obviously wouldn't accept these  
9 numbers as being current, but that indeed the  
10 importation of a no-losers test at this point in time  
11 would similarly reduce the attainable significantly?

12 A. Very substantially. Virtually none  
13 of our programs would pass a no-loser test today.

14 MR. BURKE: A. I might just add that the  
15 total basis of evaluation is different in this example  
16 here. You are looking at the standard cost of coal  
17 approach that was used for four or five years ago as  
18 opposed to the avoided cost in general. Standard cost  
19 of coal probably was a higher number than the avoided  
20 cost for Plan 15, and so it made it look like there  
21 might actually have been some potential for the  
22 no-loser test. But under the avoided cost of the  
23 system as a whole, the no-loser test has much less room  
24 to move.

25 Q. This is two scenarios based on two

1 different strategic frameworks that were being  
2 considered at that time with very different results.  
3 We could posit other alternatives to the strategy  
4 elements you have selected and run with. Would you  
5 agree if we, for example, said cost is no object for  
6 DSM, that would change the DSM level in the plan?

7 MR. WILSON: A. Absolutely.

8 Q. All right. And if we said that  
9 environmental characteristics should not be a secondary  
10 criteria, I am talking about the characteristics other  
11 than meeting regulations and standards, but become a  
12 primary planning criteria, that could affect the amount  
13 of DSM in the plan?

14 A. I am not sure. Can you tell me  
15 whether you are thinking of supply side environmental  
16 effects or demand side?

17 Q. I would say the net impact of DSM  
18 which includes both, does it not? To the extent DSM  
19 does away with the need for some supply you avoid that  
20 impact, and of course --

21 A. If I could build on top of your  
22 previous hypothetical example. If cost were no object,  
23 then I think we would have a lot more demand  
24 management, and if we had a lot more demand management  
25 we would have a lot less supply. Now, clearly the

1 environmental outcomes would be quite different. So,  
2 yes, I agree that if you put entirely different weights  
3 on different aspects of what is important you would end  
4 up with different answers.

5 Q. And the particular example,  
6 environmental characteristics, if we put a  
7 significantly different weight on that, on the virtue  
8 of avoiding supply side environmental impacts, for  
9 example, that would change the amount of DSM?

10 A. Yes, it would.

11 Q. As it is, you have chosen economic  
12 potential as the key strategy for screening programs  
13 that are -- or technologies that are eligible and  
14 that's the total customer cost test; correct?

15 A. Yes, that's right.

16 Q. And so it is, in the hierarchy of  
17 these, the key test for what is in and what is out is a  
18 dollars and cents test?

19 A. It's certainly one of the most  
20 important tests, yes, or a criterion.

21 Q. All right. We have been discussing  
22 what principles are at play, and these principles or  
23 strategy elements act as constraints on the plan or can  
24 affect the plan. These strategy elements or principles  
25 can change over time and have; is that fair?

1                   A. I said a few minutes ago that they  
2                   probably can change. I don't believe they have yet.

3                   Q. Let's take a look at some examples to  
4                   jog your memory. Can you, in this same Volume 2 of  
5                   background materials, which is Exhibit 270, turn to  
6                   page 24. I am looking at the heading "Strategic  
7                   Growth", which is, to be fair to you, not enumerated as  
8                   a strategy element but is obviously part of the plan as  
9                   it was struck at the time, or this discussion was part  
10                  of the plan at the time. Perhaps you could read that  
11                  for me, save my throat, Mr. Wilson.

12                 MR. SHALABY: A. This is merely a  
13                  listing of options; this is not a plan at all. This is  
14                  what demand management options are there.

15                 Q. Let me ask, Mr. Shalaby, this is a  
16                  listing of options and then there are observations  
17                  about whether or not these options should be pursued or  
18                  not.

19                 A. I will see if there are observations  
20                  or not. I don't remember.

21                 Q. Well, Mr. Wilson, perhaps you could  
22                  read that one into the record for us and then we will  
23                  discuss it.

24                 MR. WILSON: A. This is an exhibit, is  
25                  it not?



1 Q. This is from Exhibit 57, yes. All  
2 right. Well, if you prefer not to read it, I will  
3 highlight parts. I sense some hesitancy.

4 This is about strategic load growth and  
5 perhaps could you can just confirm my paraphrasing. It  
6 talks about strategic growth and says, since the focus  
7 of this study is on options for satisfying future  
8 customer demand for electricity, strategic growth has  
9 been eliminated from further evaluation at this time.

10 So, have I understood this correctly that  
11 at the time of the demand management options study, the  
12 guiding limits or principles or strategies that  
13 everybody -- the assumptions that everybody was working  
14 on, were that strategic growth just wasn't in the  
15 options to be considered; it was ruled out.

16 MR. SHALABY: A. Yes.

17 Q. Fine. Now, if you would take out the  
18 Balance of Power, Exhibit 3, Appendix A, I would like  
19 to read for you principle 3.3, which is on page A-3,  
20 it's entitled "Electrotechnology Transfer".

21 Demand programs aimed at improving the  
22 Ontario economy or environment will be  
23 pursued through electrotechnology  
24 development and transferred to Ontario  
25 industry. These programs must provide



1 net benefits to the Ontario community and  
2 may increase electricity demand.

3 Would you agree with me this is a case  
4 where it was ultimately decided that options which  
5 might increase load growth, which would have appeared  
6 to have been ruled out at the time of DS option study,  
7 were eventually included in the final strategy, granted  
8 subject to certain conditions like they have to improve  
9 the Ontario economy or the environment?

10 A. Those are not conditions. Those are  
11 the driving factors. What was included is options  
12 aimed at improving the Ontario economy. Now, we  
13 recognize that some of those options may have a  
14 demand-increasing dimension to them.

15 I think Mr. Wilson in his direct evidence  
16 or cross-examination gave an example of people coming  
17 to our research division, asking the researchers to  
18 help them with certain methods of curing or drying and  
19 it may result in a small increase in demand. The  
20 judgment made was it's a very small part of the action.

21 Q. But you have gone to a new strategy  
22 which has load growth as an impact and that is a  
23 change, but you believe it's justified because of the  
24 drivers that you have indicated; is that fair?

25 A. No.

1 Q. Do you see this as not a change?

2 A. Change from where?

3 Q. Change from ruling out growth?

4 A. No, it is not.

5 Q. And why is that?

6 A. Because strategic load growth,  
7 strategies to pursue load growth are very, very  
8 different from strategies that are aimed at improving  
9 the Ontario economy, helping people do things better.  
10 We are not pursuing load growth. that's pursuing  
11 customer service, pursuing economic benefit.

12 Q. And load growth may just be a  
13 byproduct then, of this?

14 A. That's correct. That's the  
15 difference.

16 Q. Was electrotechnology transfer, which  
17 could increase load growth, identified as part of the  
18 option study back then?

19 A. I have got to do some reading. I  
20 don't know if anybody else has a quick memory of that.

21 MR. BURKE: A. I think a distinction at  
22 that time was drawn between information and incentive  
23 programs, and I think the issue of providing  
24 information about electrotechnologies was not rejected  
25 but the idea that one would offer incentives for

1 strategic growth was rejected. I don't think we ever  
2 eliminated the idea that we would maintain information  
3 and have information about electrotechnologies, but  
4 that whether we would use incentives to encourage  
5 people to use them, that was the distinction that was  
6 made and rejected.

7 Q. Mr. Burke, does R&D spending act as  
8 an incentive, lower the price of an option for  
9 customers?

10 A. It's very difficult to say, I think.

11 Q. Mr. Wilson, I think it was you who  
12 last week talked about the example when a customer  
13 comes forward and says, can you help me with - what was  
14 it - radiowave heating of paints, or some some such  
15 think, you helped them, you view that as part of your  
16 job?

17 MR. WILSON: A. Yes, that service is  
18 provided.

19 Q. And that involves an R&D expenditure?

20 A. Yes.

21 Q. And you don't charge the customer for  
22 that, do you?

23 A. I don't know the details of cost  
24 sharing.

25 Q. Some cases you might enter into a

1 cost-sharing agreement?

2 A. Yes, but I don't know.

3 Q. In general, can you tell me, do you  
4 recover your R&D budget from customers, charged  
5 specifically as opposed generally into rates?

6 A. In it this particular instance I am  
7 not sure.

8 Q. And generally?

9 A. The R&D costs in general are  
10 recovered just through electricity rates.

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1 [12:11 p.m.] Q. And of course, just to round this  
2 discussion out, there are principles that you have  
3 abandoned or rejected, and we don't have to go into  
4 detail. The no-losers test is the one that we have  
5 already discussed, fair?

6 A. Yes, the no-losers test was  
7 abandoned. I think it is perhaps more accurate to say  
8 it was a principle put forward for discussion. It was  
9 discussed, among other things, at length by the Select  
10 Committee of the Legislature, and the conclusions of  
11 the legislature committee was that we should not use a  
12 no-looser test, because it unduly constrained a lot of  
13 demand management which was attainable.

14 Q. Right. That choice, with respect to  
15 the no-losers test, it was a very significant one, is  
16 that fair to say?

17 A. I think what I just finished saying  
18 is it was never a choice in the first place. It was  
19 simply proposed and discussed and examined. We didn't  
20 adopt a position until the demand supply planning  
21 strategy was completed.

22 Q. It was option that was put on the  
23 table by Ontario Hydro, and a number of people reacted  
24 rather strongly to it, fair to say?

25 A. Oh, yes. A number of people thought

1 it was wonderful and others thought it was terrible.

2 Q. If we turn to Volume 3 in the  
3 background materials, which is Exhibit 271, I'd like to  
4 talk about potential impact. As I recognize, you've  
5 formally rejected, I guess would be the word then, the  
6 no-losers test, but I think as I will show later, this  
7 comparison will be helpful to us in discussing the  
8 various levels of DSM we might obtain. This is an  
9 excerpt from Appendix B, that is page 3 from the  
10 electrical--

11 THE CHAIRMAN: What page of the exhibit  
12 is it?

13 MR. D. POCH: I am sorry, page 2 of  
14 Exhibit 271.

15 Q. At page 1 of this exhibit, we  
16 start -- we have the cover page there. It is from the  
17 report of the Electrical Planning Technical Advisory  
18 Panel, EPTAP, July '88, and Panel, this is a, by way of  
19 an example, some scenarios that were -- hypothetical  
20 scenarios that were put forward by part of the EPTAP  
21 panel to illustrate the potential impact of constrained  
22 incentives, constrained by the no-losers test. And let  
23 me make sure we, first of all, agree on what this says.

24 I'm not sure if this is for Mr. Shalaby  
25 or Mr. Wilson, but as I understand this example, there



1 is a hypothetical utility, it is 100,000 gigawatthour a  
2 year utility, and they are anticipating ten per cent  
3 growth. And the scenarios there set out three ways  
4 they could go about satisfying that growth and some  
5 assumptions about what the costs would be; a generation  
6 strategy, which is an all supply strategy; a mixed  
7 strategy, but conservation is constrained by the  
8 no-losers test; and then a Case 3, which is  
9 conservation up to the marginal cost of generation.

10 Just so we can understand their point of  
11 view, at page D7 of the EPTAP report, which is page 6  
12 of our exhibit, in describing strategy 3, which is the  
13 up-to-marginal cost of supply strategy, it reads, I  
14 will read it from the bottom of that paragraph:

15 By acquiring all conservation  
16 measures up to the marginal cost of  
17 generation, the present value of the  
18 total cost of meeting societies electric  
19 energy service requirements has been  
20 reduced by 3.4 billion, when compared  
21 with the all generation strategy in  
22 strategy 1, and by 2.3 billion when  
23 compared with strategy 2, which uses the  
24 no-losers test decision rule. This  
25 reduction in total society cost and in

1 consumers' electric bills happens with  
2 only a 4 per cent increase in rates and  
3 will free two to three billion dollars  
4 for other uses by consumers.

5 Now, I was quite struck by this example,  
6 the relatively small rate impact compared to the  
7 tremendous benefit in terms of societal costs and  
8 benefits. And I wanted to ask you what the numbers are  
9 like for Ontario Hydro between a no-losers -- what's  
10 the rate impact of abandoning the no-losers test?

11 MR. SHALABY: A. I don't think we have  
12 done that kind of detailed analysis. Anybody else  
13 aware?

14 Q. Mr. Shalaby, just looking at the  
15 EPTAP example as a sort of point of comparison, would  
16 it provide us with some guidance that generally  
17 speaking the rate increase is not a -- it is not a big  
18 jump?

19 THE CHAIRMAN: Not a what? I am sorry.

20 MR. D. POCH: Q. There is not a big jump  
21 in rates for both participants and non-participants,  
22 per kilowatthour we are talking here, as a result of  
23 abandoning the no-losers test and going for all the  
24 cost effective conservation?

25 MR. SHALABY: A. When you characterize

1 is it as a 4 per cent increase, it doesn't look like it  
2 is a big jump. When you know how many millions of  
3 dollars that is, you may consider it a big jump. That  
4 would be about \$300-million a year.

5 Q. I am sorry, say that again. Less  
6 than--

7 A. Four per cent increase in rates as a  
8 rough figure, I think, would be about \$300-million per  
9 year, every year.

10 Q. But the benefits of going with a  
11 conservation program, an unconstrained by no-losers  
12 test conservation program is in the billions, I take  
13 it. That is not an unreasonable suggestion that comes  
14 out of that example.

15 A. That is a ball park, yes.

16 MR. BURKE: A. I think it is important  
17 that we are comparing flows and cumulative totals and  
18 not mix them up.

19 The cumulative amount of incentive money  
20 in this example is \$3-billion, and that's what's shown  
21 in column 3 of page 2, and so that the \$300 million  
22 that Mr. Shalaby was talking was the annual amount that  
23 cumulates to the 3-billion. And so the spin off  
24 benefits are of roughly the same order. But not ten  
25 times or anything like that.

1 Q. The point is, we are not seeing a  
2 doubling of rates or any such thing here to achieve  
3 these kinds of billion, multi-billion dollar savings.

4 MR. SHALABY: A. Not in this example you  
5 don't.

6 Q. And in the real world, in your plan,  
7 we are not seeing that either?

8 A. Unlikely.

9 Q. Just to make sure readers of the  
10 transcript are clear, we are talking about rate levels  
11 for participants and non-participants for the  
12 electricity they continue to buy. We all agree, I take  
13 it, that bill levels on average will fall, by  
14 definition, because this is a cost effective program?

15 MR. SHALABY: A. Depending on the degree  
16 of participation. But on average if a program is well  
17 designed, yes.

18 Q. Even at 100 per cent penetration, 100  
19 per cent participation, if the program has passed the  
20 total customer cost test bills fall, average bills  
21 fall. I should be careful to qualify that.

22 MR. BURKE: A. I think you have to say  
23 in the long run, and you will be safe.

24 Q. All right, thank you for that caveat.

25 Now that, of course, raises the spector

1 of equity concerns as between participants and  
2 non-participants, and I take it that one of the  
3 problems with abandoning the no-losers is the concern  
4 which the no-losers test seeks to guard against, is  
5 that once you cross that line you risk non-participant  
6 rates going up relative to what they would have with a  
7 supply option.

8 MR. WILSON: A. Yes, that is right.

9 Q. Now is it -- I see in page B-4 that  
10 EPTAP addresses this. And I'm reading from the first  
11 full paragraph on that page, which is page 3 of our  
12 exhibit, 271:

13 Although the aim of the no-losers  
14 test is to protect non-participants, it  
15 is possible to treat all customer groups  
16 fairly without adopting this particular  
17 decision rule.

18 And they go on to give examples, such as  
19 widely available programs, and the fact that there is  
20 benefits to customers. Most customers would be willing  
21 to participate. And then they, in the next paragraph,  
22 say:

23 However it should be kept in mind  
24 that the objective of least cost planning  
25 is to minimize the total societal cost of



1 providing electric energy services, not  
2 to minimize rates. If an objective of  
3 minimizing rates were adopted, least cost  
4 plans would become extremely shortsighted  
5 and would advocate selecting resources  
6 that could substantially increase the  
7 total cost of supplying power. Societal  
8 costs will be minimized by selecting all  
9 measures that cost less than or are equal  
10 in cost to marginal cost of new  
11 resources, and this will minimize the  
12 expected present value of total revenue  
13 requirement. From another viewpoint this  
14 will minimize the average electricity  
15 bills of consumers.

16 Do you agree with that statement, panel?

17 MR. SHALABY: A. Yes.

18 Q. Just generally, and I should point  
19 out the reason I'm spending some time discussing  
20 no-losers is, of course, there are other ways your  
21 strategy limits or raises concerns about the impact on  
22 non-participants. So, I think we will generalize these  
23 points later.

24 But would you agree that more universal  
25 programs, which is the example given by EPTAP, means



1 there would be fewer non-participants who might feel  
2 slighted?

3 MR. WILSON: A. Yes, that is the general  
4 strategy. In fact that is strategy 3.9 in Exhibit 74,  
5 which says that:

6 We should endeavour to provide  
7 opportunity for broad customer  
8 participation, offering a diverse set of  
9 demand management programs covering all  
10 customer sectors and many end uses.

11 So, that reflects precisely the points  
12 that you have been reading.

13 Q. And would you agree that as you  
14 implement demand management programs, especially ones  
15 that don't pass the no-losers test, rates per  
16 kilowatthour for non-participants will start to rise,  
17 however significantly or slightly, and that would be an  
18 added driver encouraging people to participate?

19 MS. FRASER: A. Yes, I would agree with  
20 that.

21 MR. BURKE: A. I'd like to repeat a  
22 point I made yesterday, or on Thursday with Ms. Couban  
23 that, in fact, from the load forecast perspective, the  
24 increase in rates will actually serve to decrease what  
25 we call basic load, and effectively increase natural

1 conservation, and may not, in fact, increase the  
2 program participation, but should lower load by the  
3 effect of the price elasticity.

4 Q. Mr. Burke, from the perspective of a  
5 nonparticipant, someone who hasn't let you in the door  
6 with your smart light bulbs, what you're saying to me  
7 then is that he would be more inclined now, as indeed  
8 participants might be more inclined, to go out and buy  
9 that smart light bulb at Home Hardware, because his  
10 electricity rates have gone up? That's what you are  
11 saying? Natural conservation would be enhanced?

12 A. There is a wide range of measures  
13 that a customer might choose, but I would hope that he  
14 wouldn't go out and do something -- you wouldn't expect  
15 him to go out and do something naturally that we are  
16 developing programs to get other people to take up,  
17 because our programs are intended to encourage people  
18 to do things that they wouldn't naturally do.

19 Q. So wouldn't you expect that the  
20 non-participant would be more inclined to let you in  
21 the door with the smart light bulb, because it is going  
22 to cost him more if he doesn't now? Next time you  
23 leaflet his house, he's going to pay more attention.

24 A. It's possible, yes.

25 MR. SHALABY: A. He now becomes a late

1 participant, not a non-participant.

2 Q. And so that's a way that higher rates  
3 could increase participation rates in DSM programs.

4 MR. BURKE: A. Yes, I'll agree with  
5 that.

6 Q. Now, just on this inequity concern,  
7 or equity concern, would you agree there are other  
8 mechanisms, many other mechanisms for safeguarding  
9 against inequity, and one of those might be that you  
10 try to match costs and benefits, either on a  
11 customer-specific basis in the case of a very large  
12 customer, or perhaps on a customer class basis, you'd  
13 charge the cost of residential programs to the  
14 residential sector in rates, as opposed to asking  
15 industry or general customers to pay for that? Is that  
16 one way we can mitigate this concern?

17 MR. HARPER: A. Yes, I think that is one  
18 way you can approach it.

19 Q. Now, you do include this strategy  
20 element about acceptability. Do I take it that this  
21 concern about cross subsidization or potential cross  
22 subsidization is one of the ways in which programs or a  
23 given program level might transgress against that rule  
24 about customer acceptability, in your view?

25 MR. WILSON: A. I think there are sort

1 of two kinds of answers to this. One is if the level  
2 of incentives were such that I'd discovered that most  
3 of my neighbors were capitalizing Ontario Hydro's  
4 demand management programs and becoming distinctly  
5 better off than I was, I would write nasty letters to  
6 whoever. That isn't so much a matter of specific  
7 program design as it is sort of an overall awareness  
8 that something wrong is occurring or I'm being a victim  
9 in some sense. So there is--

10 Q. That is an expression of this concern  
11 for cross subsidy then?

12 A. Exactly, right. There is, in the  
13 area of program design, this level of incentives and as  
14 to whether or not the level of incentive is acceptable  
15 to customers who are specifically affected by the  
16 program is a topic that perhaps is considered on a case  
17 by case basis.

18 Q. That would be -- but that would be  
19 the flip side of the coin. That is that is it enough  
20 of an incentive to get them to participate. Is that  
21 your latter point?

22 A. I think that is part of it.

23 Q. But I'm correct then that this  
24 concern about the perception, or this perception, real  
25 or unreal, depending on how careful you are in the

1 program design, about the impact on non-participants,  
2 the cross subsidy concern, or the impact between  
3 customer classes and so on, is part of the limit that  
4 that strategy element about customer acceptability  
5 represents?

6 A. Yes. We don't know exactly where  
7 that limit is. I think we are feeling for it.

8 Q. So, it is fair to say then that your  
9 rejection of the no-losers test has been tempered  
10 somewhat by your interpretation of the acceptable to  
11 customers test, which you say could limit incentives?

12 A. Yes, I'd agree.

13 Q. By the way, while we are on the topic  
14 of rejected or options, I noted, this is reproduced in  
15 volume 3 of our background materials at page 7 -- I  
16 don't know if you have to turn it up, which is Exhibit  
17 271, that EPTAP recommended that Ontario Hydro work  
18 with municipal utilities to develop rates based on  
19 long-run marginal costs, thereby encouraging  
20 appropriate levels of conservation. Obviously you have  
21 rejected that one. Could you tell me why?

22 MR. HARPER: A. I think the EPTAP  
23 recommendations were a number of recommendations that  
24 were input into the final decision on the Demand/Supply  
25 Planning strategy. ...



1 [12:30 p.m.] Exhibit 73 sets out all the comments that  
2 were received, both from EPTAP, also from the  
3 government ministries, and from a number of other  
4 organizations that were consulted by Ontario Hydro. I  
5 think it is fair to say that while EPTAP made this  
6 particular recommendation, the government and  
7 ministries, and in particular the Ministry of Energy  
8 staff itself expressed a number of concerns about  
9 marginal cost testing. They were evident in the  
10 material Ms. Couban was using with us on Thursday,

11 In terms of input put from the public in  
12 general, there were arguments on both sites, a number  
13 of people arguing strongly for average cost, a number  
14 of people feeling that marginal cost pricing was the  
15 way to go.

16 I think the interesting thing was, if you  
17 look at the exhibit, the exhibit expresses the view  
18 that they relied fairly heavily upon the findings of  
19 the Select Committee of the Legislature primarily  
20 because the Select Committee had benefit of the results  
21 of the EPTAP report and of the government ministries,  
22 and on this particular issue the Select Committee was  
23 silent, the Select Committee didn't say anything.  
24 Given that and given the current statutory  
25 requirements, the Power Corporation Act, that lead to



1 the basis for the current strategy.

2 Q. And just on the use of rates for  
3 inspiring conservation generally, I take it that it is  
4 the OEB that had held the hearing that you spoke of  
5 earlier in evidence which rejected marginal cost  
6 pricing, that was back in HR 5. When was that?

7 A. Yes, I believe the hearing started in  
8 '76 and the report was finished in '79.

9 Q. And EPTAP's recommendation, and EPTAP  
10 was a special advisory panel set up to advise the  
11 Minister particularly in the context of proposed system  
12 expansion, EPTAP's report was when?

13 MR. SHALABY: A. It was about the demand  
14 supply planning strategy, not a proposed system  
15 expansion.

16 MR. HARPER: A. I believe the date of  
17 the report is July, 1988.

18 Q. All right. Now, you have referred me  
19 to, I think, it was Exhibit 73 where these comments of  
20 EPTAP and Select Committee and others are cumulated.  
21 Can we turn that exhibit up?

22 This is a rather bulky exhibit which has  
23 several parts. Do you have that?

24 A. Yes, I believe we have got the  
25 exhibit.

1 Q. Part D is entitled, "Strategy  
2 Messages and Responses".

3 A. Yes.

4 Q. And I take it this is where you have  
5 taken all of the individual responses that you have  
6 gathered and tried to put them together by subject  
7 matter.

8 At page 19 of this section, it's  
9 interesting to observe, first of all, this is the  
10 beginning of the demand management section, there is  
11 the observation you offer, demand management received  
12 the greatest discussion throughout the review and many  
13 strategy issues were raised and are addressed in this  
14 section.

15 THE CHAIRMAN: Just so I am understand,  
16 perhaps I should ask, is this internal Hydro document  
17 dealing with the Draft Demand/Supply Plan as a  
18 preliminary exercise to finalizing the actual plan? Is  
19 that what this is?

20 MR. SHALABY: Yes.

21 THE CHAIRMAN: In which there is  
22 collected all the various views of various people in  
23 the Hydro organization on matters in the demand supply  
24 plan?

25 MR. SHALABY: Collected views not from

1 the Hydro organization but from the external community  
2 that participated in the discussion, included in the  
3 Select Committee, including submissions that were made  
4 to the Select Committee. So, several hundred  
5 submissions from people outside of Ontario Hydro and  
6 this is our collection of what they told us and what we  
7 did with it.

8 THE CHAIRMAN: Is it an attempt to  
9 compile them and how you are going to deal with it?

10 MR. SHALABY: That's correct.

11 THE CHAIRMAN: Thank you.

12 MR. B. CAMPBELL: Mr. Chairman, in your  
13 question you indicated with respect to the plan. I  
14 believe Mr. Shalaby may have missed this but he has  
15 been careful to correct it as we went along, this was  
16 in the process of formulating the strategy, not a  
17 response to the plan as it is now before this Board.

18 THE CHAIRMAN: I'm sorry, it's the  
19 strategy rather than the plan itself.

20 MR. B. CAMPBELL: Yes. I'm sorry, Mr.  
21 Shalaby has made a point of trying to keep the  
22 chronology and so on - development of this straight -  
23 and I just thought there had been ships passing in the  
24 night there.

25 MR. D. POCH: Q. Mr. Shalaby, these

1 various comments which are pulled together here then  
2 would have helped you to move from this precursor  
3 called the DSPS, the strategy, and produce the ultimate  
4 balance of power plan which forms the basis for the  
5 this hearing?

6 MR. SHALABY: A. It helped us move from  
7 something we called a draft demand supply planning  
8 strategy, to something we called the demand/supply  
9 planning strategy, which is the final. One was  
10 produced in '87, one was produced in '89 after taking  
11 all these comments into consideration.

12 Q. And the final strategy which this  
13 helped you produce then is the basis for the balance of  
14 power plan?

15 A. That is correct.

16 THE CHAIRMAN: I'm sorry, Mr. Poch. And  
17 that's contained in Exhibit A of the Demand/Supply Plan  
18 which is Exhibit 3; is that right?

19 MR. SHALABY: Appendix A, yes.

20 THE CHAIRMAN: Appendix A. I'm sorry.  
21 Thank you.

22 MR. SHALABY: And also the full document  
23 is also an exhibit in this hearing.

24 MR. D. POCH: Q. And that is Exhibit 74,  
25 I believe.

1 MR. SHALABY: A. I think it is, yes.

2 Q. Where you expand on those elements?

3 A. That's the rationale and the  
4 expansion is there, yes.

5 Q. And just so we can understand what  
6 has gone on here, if you turn back to part C at page 42  
7 you would see, for example, there it's Dr. Helene  
8 Connor-Lajambe who is an energy economist, and she  
9 suggests least cost risk planning, including social  
10 cost and other external costs should be the basis of  
11 selecting energy plans. And if we turn to page 92, we  
12 would see a similar comment from IPPSO, for example.

13 So, this part D cummulates these various  
14 comments from individuals, from organizations and from  
15 review committees such as the Select Committee, so that  
16 you can synthesize this?

17 A. Yes.

18 Q. Now, that particular comment by Dr.  
19 Conner-Lajambe, which is supported by IPPSO as I have  
20 noted, basically you include social costs and external  
21 costs as the basis of selecting alternate energy plans,  
22 that was rejected, I take it, in favour of sort of  
23 normal business practice of excluding these external  
24 costs; is that fair?

25 A. I don't see that. It says least cost



1 risk planning including social costs and other external  
2 costs should be the basis.

3 Q. All right.

4 A. They are the basis. I don't know  
5 whether -- it may be monetizing the costs if we have  
6 got to go back into what do you with the cost...

7 Q. Did you interpret IPPSO's comment the  
8 same way, support for the least cost planning approach,  
9 including the cost of social and environmental factors?  
10 They weren't necessarily suggesting that you had to use  
11 those factors to change the level of the screening of  
12 DSM programs, for example?

13 A. It's hard for me to know how exactly  
14 they were interpreted without going through that  
15 four-inch document here that we have. Perhaps we can  
16 take the time to see where that comment was categorized  
17 and what we did with it. That could be the proper way  
18 of tracing how it was interpreted and how it found its  
19 way to the final strategy.

20 Q. There was a process where you took  
21 such comments, you interpreted them, you rejected some,  
22 you accepted some others and you came out with your  
23 strategy.

24 A. Yes.

25 That document again, which is Exhibit 73,



1 has in two pages a summary of significant changes to  
2 strategy as a result of all of that consultation and  
3 all of that review. That would be page 111 of Exhibit  
4 73. It lists what the substantial changes are to the  
5 strategy and it also lists substantial no changes,  
6 things that we received a lot of urging and comments to  
7 do and we decided not to do.

8 So, page 11 and 12 really has the  
9 distilled outcome of all the consultation and the  
10 impact it had on the movement from a draft strategy to  
11 a final strategy.

12 Q. Let's take a look at a particular  
13 example. Could you turn to page 39 of part D. There  
14 in 3.9.2, customer contributions, there are a list of  
15 key messages, the gist of which is, you ought to be  
16 looking at 100 per cent incentives, and the response  
17 Hydro offers is to require a customer contribution  
18 where there is a direct benefit to the customer, for  
19 example, lower electricity bills, and you say it  
20 doesn't prevent you from paying full cost of an option  
21 where there is no direct benefit to the customer.

22 So, I take it that's an example of this  
23 consultative process leading to at least a number of  
24 suggestions which you simply reject?

25 A. Reject. I don't know about simply

1 reject. Yes, we do reject after consideration, yes.

2 If you go to page 12, there are five  
3 significant areas of no change, and that's one of them.  
4 We know that people have urged us is to do this, and  
5 one of the five things that we have not changed in  
6 spite of what we heard is the customer contribution to  
7 demand options, and that wasn't simply; that was with a  
8 lot of deliberation and a lot of weighing of the pros  
9 and cons.

10 Q. And you haven't retreated from that  
11 position at this time? You haven't change that view.

12 A. I think the demand program managers  
13 present here can tell you that they have flexibility in  
14 what contribution they insist on and what contribution  
15 they may forego.

16 Q. Can you agree with me then that with  
17 certain exceptions, in general this still represents  
18 Ontario Hydro's view?

19 A. Yes. But as we learn more about  
20 demand management, we know that demand management is  
21 not a singular activity. What works in water heaters  
22 doesn't work in light bulbs and what works in  
23 commercial doesn't work in industrial. So, we have a  
24 multitude of programs, this works well in some and  
25 doesn't work at all in others.

1 Q. Now, if we go back to page 20 --

2 THE CHAIRMAN: Which part now?

3 MR. D. POCH: Part D. I'm sorry, Mr.

4 Chairman.

5 Q. Page 20 of Part D of Exhibit 73.

6 There we see a response which reads:

7 There is strong and widespread support  
8 for efficiency improvement programs to  
9 reduce demand and support for the high  
10 priority Hydro is giving to  
11 demand-reducing options. Recognition of  
12 the economic and environmental benefits  
13 of efficiency improvements and reduced  
14 growth in demand are common reasons for  
15 this support.

16 I was struck by that response compared to  
17 other responses like the one we just looked at where  
18 you go on to state to what extent you adopt or reject  
19 the suggestions. You don't go on and explicitly say  
20 whether Hydro supports the principle of recognition of  
21 environmental benefits in particular, in determining  
22 how far to go to reduce demand. Do you, in fact, do  
23 that somewhere?

24 MR. SHALABY: A. I will have to look,  
25 but I expect that in Exhibit 74 there is rationale for

1 the demand/supply planning strategy that was finally  
2 adopted. And I would expect that if we look under  
3 demand management we will find that the environmental  
4 benefits of demand management is one of the rationale  
5 and reasons for giving it the priority that we did.  
6 So, we do that somewhere else, yes.

7 Q. Wouldn't we expect to see, if you  
8 were to be taken to agree then with those comments of  
9 the participants which are listed above that response,  
10 that are summarized in that response, where we saw that  
11 have principle 3.3, electrotechnology transfer, and my  
12 notes say it reads:

13 Demand programs aimed at improving the  
14 Ontario economy or environment will be  
15 pursued through electrotechnology  
16 development and transfer to Ontario  
17 industry. These programs must provide  
18 net benefits to the Ontario economy and  
19 may increase electricity demand.

20 Wouldn't we expect to see a corresponding  
21 off-electricity principle? You know, demand programs  
22 aimed at improving the Ontario economy or environment  
23 will be pursued through energy efficiency improvements  
24 transfer to Ontario industry. These programs must  
25 provide net benefits to the Ontario community and may

1 decrease electricity demand.

2 There is no symmetry there, I take it?

3 A. Between that and off-electricity, is  
4 that what you are saying?

5 Q. Yes. Wouldn't you agree that that  
6 second strategy, my hypothetical strategy which mirrors  
7 the electrotech one would be in keeping with your  
8 response and the comments you received?

9 A. Give me sort of the distinguishing  
10 features between the two because you read them both  
11 quickly.

12 Q. I am just suggesting that it would  
13 appropriate to have a strategy where you encourage  
14 electrical efficiency improvement, transfer of  
15 technology to Ontario industry and that the programs  
16 must provide net benefits to the Ontario economy and  
17 may decrease electricity demand.

18 A. How would that be different from  
19 encouraging demand management? That is really a  
20 description of a good demand management program,  
21 something that would do a lot of good and also reduce  
22 the demand. That would be a demand management program.

23 Q. I hadn't taken it that the  
24 electrotechnology transfer was constrained by kind of  
25 avoided cost limits that we see for DSM. It seems to



1 suggest, the principle suggests there that if there are  
2 net benefits for the Ontario community, that's the  
3 test.

4 A. I am not sure if that kind of  
5 research activity is subjected to what kind of tests, I  
6 am not aware of that.

7 I think we said once or twice that it's a  
8 minor piece of the action, it's a customer service kind  
9 of orientation, something that's on-going with Ontario  
10 Hydro for many, many years and it is not comparable in  
11 any way to the magnitude of the demand management  
12 program.

13 Q. Let me pick a bigger example then.  
14 Until a month ago we didn't have off-electricity  
15 programs in the demand/supply management part of this  
16 plan?

17 A. We still don't, but that's fine.

18 Q. We still don't but now we are talking  
19 about them at least.

20 Mightn't we expect there would be many  
21 fuel switching off-electricity programs which could  
22 pass a test of providing net benefits to the Ontario  
23 community? You have told us about that; fair?

24 A. Yes. But that was not possible at  
25 the time of drafting this strategy because we had



1 restrictions in the Power Corporations Act that  
2 prevented us from doing that.

3 Q. You felt at the time that you  
4 couldn't include a strategy element encouraging that  
5 sort of thing because you felt constrained by the Power  
6 Corporation Act?

7 A. That was one of the factors.

8 Q. All right. Did you, in fact, suggest  
9 such a strategy and encourage the government to allow  
10 you to do such work?

11 A. What time period are you talking  
12 about now?

13 Q. In the time frame of the development  
14 of the balance of power. Has there been a push from  
15 Ontario Hydro for off-electricity, freedom to do  
16 off-electricity and encourage fuel switching where it's  
17 economic or environmentally beneficial? Has this been  
18 something that you have pressed for?

19 A. Not to my knowledge, no.

20 Q. All right. Let's look at some of the  
21 specific plans that were analyzed in coming forward  
22 with your DSM plan, and this I think is easiest by  
23 reference materials we have provided in Volume 2 of our  
24 background materials, Exhibit 270, at page 37.

25 Mr. Shalaby, you could help us here with

1 where we are in the chronology.

2 A. Give me a second. On what page?

3 Q. Page 37 of that exhibit.

4 A. Volume 2?

5 Q. Volume 2.

6 A. I notice you are going in order just  
7 like you did in the other panels. Page 1 and go on  
8 from there. 37, here we go.

9 Q. It's a shifting reality, Mr. Shalaby.  
10 (laughter)

11 A. It is. You have changed the order of  
12 your cross-examination again.

13 Q. Just again, just in terms of the  
14 chronology, this is at the time of the draft  
15 demand/supply planning strategy exercise, you were  
16 developing your strategy. It says in the middle of  
17 that page, there were 15 basic plans assessed and they  
18 were designed to illustrate - and I am intrigued by  
19 this - extreme strategies with respect to either demand  
20 or supply options; is that correct?

21  
22  
23  
24  
25 ...

1 [12:51 p.m.] A. Yes.

2 Q. And on page 2, page 38 of the  
3 exhibit, that's the quote that we have already referred  
4 to, where there were two possible levels of incentives  
5 considered, the one that constained no-losers, and the  
6 other which is 100. I take it that 100 per cent was at  
7 the time considered an extreme strategy?

8 A. I wouldn't have thought so, no.

9 Q. Turning then to page 40 of our  
10 exhibit overleaf, we see the various representative  
11 plans, I think they were called at the time, laid out  
12 in short description. Could you just again identify  
13 which plans had the high level of incentives for DSM?

14 A. Plans AD, Plan J, Plan G; all of  
15 these have incentives and between brackets the word  
16 "high."

17 Q. And AD is the one which is the one  
18 without major centralized generation but includes a  
19 price element.

20 A. Yes.

21 Q. You spoke about this briefly with Ms.  
22 Couban. How high was the price element there, which I  
23 see on page 41, that achieves 900 odd megawatts of the  
24 job in that scenario?

25 A. My recollection is about 20 per cent

1 real increase in price for median load growth, and  
2 about 200 per cent increase in price in upper load  
3 growth.

4 Q. It gives you problems in the upper  
5 load growth scenario, I imagine?

6 A. Gives our customers problems.

7 Q. Yes. And then the other two plans  
8 are simply high incentives linked either with a nuclear  
9 construction program or a fossil construction program?

10 A. Yes.

11 Q. So, of the 15 plans, there were only  
12 three that had this high incentives for reduced demand  
13 included.

14 A. Yes.

15 Q. Of the mixed plans which are listed  
16 there, they all have what's called the moderate  
17 incentive level?

18 A. Yes.

19 Q. That was the one corresponding to the  
20 no-losers test, or at least was thought to at the time.

21 A. That was the one that corresponded to  
22 50 per cent.

23 Q. Fifty per cent?

24 A. Incentive, yes.

25 Q. All right. Just out of interest, I

1 noticed the Plan P doesn't appear on figure 3.2 of page  
2 41 of our exhibit. That was the all-price scenario?

3 A. Yes.

4 Q. I interpret, am I reading the table  
5 then, figure 3.2 in your exhibit, correctly that these  
6 plans with the higher incentives contain anywhere  
7 from -- my quick math is 56 to 121 per cent more demand  
8 management than any of the plans with moderate  
9 incentives.

10 A. You have been known to do good math,  
11 Mr. Poch, and that's fine.

12 Q. All right. And isn't it also true  
13 that these three plans, the plans with the high demand  
14 incentives that rejected this 50 per cent level for  
15 incentives, they scored indeed far and away the highest  
16 when ranked according to socio-economic and  
17 environmental impacts?

18 A. Which plans now again?

19 Q. This AD and J and G.

20 A. And that's in a different part of the  
21 report, if you can refer me to it.

22 Q. Yes, I have -- we have included this.  
23 It was a late comer, and it is in Volume 3 of our  
24 materials, Exhibit 271 at page 10. And I should  
25 correct my statement to you. The two that are



1 represented there score highest, J and G, on  
2 socio-economic and environmental.

3 A. They do, yes.

4 Q. AD isn't in there, is it, which  
5 doesn't include either fossil or nuclear?

6 A. No, it is not there.

7 Q. So, I take it you can't help us then  
8 where the -- what the socio-economic and environmental  
9 impacts relatively to other plans considered at the  
10 time would have been for AD, which doesn't have any  
11 major supply?

12 A. You are right.

13 Q. I noticed -- well, I'll leave this,  
14 since I haven't included it in my materials, but I will  
15 just point out for the record that in Exhibit 66, there  
16 are further comments about why those plans did so well.  
17 Mr. Shalaby, I take it that, in general, these are seen  
18 to have the best impact on the provincial economy,  
19 because they free up customers' incomes for other use?

20 A. I don't know exactly the reasons.  
21 I'm not versed in that.

22 Q. Let's leave that. I don't have it in  
23 front of me either.

24 A. Right.

25 Q. So we don't have any, for example

1 Plan AD which is based on high incentives and no  
2 supply, before us today do we, Balance of Power is one  
3 of the alternatives?

4 A. No, there isn't one.

5 Q. And that's despite the fact that  
6 presumably yet, because its companion programs, J and  
7 G, scored the best on socio-economic and environmental?

8 A. Well, you are making a presumption  
9 that I don't necessarily agree with.

10 Q. All right.

11 A. Plan AD has an increase in price.  
12 I'm not sure whether that increase in price raises a  
13 socio-economic acceptability or not. Particularly in  
14 the high load growth, when you have a tripling of  
15 electricity price, it would have a devastating impact  
16 on the economy.

17 Q. Mr. Shalaby, the plans you brought  
18 forward in the Balance of Power, they are more in  
19 keeping with what was called the mixed plans at the  
20 time?

21 A. Yes.

22 Q. You were calling for a mix?

23 A. Yes.

24 Q. And at the time you were evaluating  
25 them here for your strategy, none of the mixed plans

1 had this high incentives scenario.

2 A. Not at this stage five years ago,  
3 yes.

4 Q. When we went on to look at  
5 illustrative plans for strategy implementation, and we  
6 have included in our Volume 3 at page 12 an excerpt  
7 from that, and illustrative plan strategy  
8 implementation that cover sheets, page 11 and 12. The  
9 ones you looked at and presented were ones which all  
10 had this moderate incentive level.

11 A. Yes.

12 Q. Indeed, Mr. Wilson, the 50 per cent  
13 number, which at that time was a limit in that scenario  
14 and some other scenarios, the 50 per cent number for  
15 the level of incentives, that is a fair category -- I  
16 am sorry, a fair description of what the typical  
17 incentive level is in your programs today, is it not,  
18 on average?

19 MS. FRASER: A. I have never actually  
20 sat down and calculated the average, but I don't think  
21 so.

22 Q. I did and came out less than that. I  
23 didn't want to--

24 A. Oh.

25 Q. I didn't want to throw out an exact

1 number.

2 A. Did it include all my new programs on  
3 100 per cent level.

4 THE CHAIRMAN: Well, excuse me, you are  
5 way ahead of me now. Where did you get the 50 per cent  
6 from? What did you apply the 50 per cent to?

7 MR. D. POCH: Perhaps I should pose this  
8 as a question to the witnesses then, Mr. Chairman, so  
9 we have have it from their mouths.

10 Q. In your program descriptions, you  
11 often include either limits to incentives that would be  
12 offered as a percentage of the total that you could  
13 spend in keeping with the total customer cost test, and  
14 sometimes you offer suggestions as to what you expect  
15 the typical incentive will be, is that fair?

16 MS. FRASER: A. Yes. In some of our  
17 programs we do have a cap in savings by design,  
18 existing buildings. It is 50 per cent of the total  
19 project costs, and that has very -- we have little to  
20 do with the incremental cost. And that's what you were  
21 really talking about here. In terms of the total  
22 customer cost test, you deal with the incremental cost  
23 of the option.

24 However, for the street lighting program,  
25 as I talked about the other day, it was 25 per cent of

1 the conversion costs, because there is not really an  
2 incremental cost, because they are not really doing  
3 anything with their existing street lights.

4 For the non-profit housing program we are  
5 paying 100 per cent of the whole project cost. So it  
6 varies across the Board.

7 Q. I take it you are not startled by a  
8 suggestion then that it wouldn't be unfair to  
9 characterize your expectation, and indeed in some cases  
10 the actual limit you have defined as to what you are  
11 prepared to pay, as about 50 per cent? That is  
12 incentives?

13 A. That is the rule of thumb we have  
14 been using, I would say. But we haven't been hung by  
15 it, let's put it that way.

16 Q. And that is incentives generally  
17 would come in at around 50 per cent of the level that  
18 could be justified for incremental costs meeting the  
19 total customer cost test?

20 A. No, I guess that is exactly opposite  
21 of what I said. I said for savings by design was 50  
22 per cent of the total project costs. Now, the total  
23 customer cost test is based on the incremental cost,  
24 which obviously is less than the project cost.

25 Q. In some cases.



1 A. In some cases, yes; sometimes.

2 Q. Savings by design, generally, is a  
3 program aimed at the point when there is going to be a  
4 commitment to new construction or a renovation or some  
5 such thing.

6 A. It is either a new construction,  
7 rennovation or straight retrofit. It can handle any of  
8 those situations.

9 Q. So could you hazard a guess then as  
10 to what the incentive is, compared to the two levels  
11 that we saw in the DSPS draft?

12 A. Well, I guess I'm trying to  
13 understand what some of our documentation does say,  
14 because on page 12 of your Exhibit 271, it refers to  
15 moderate incentives levels, i.e., 50 per cent of the  
16 program costs. Now that is silent as to whether it is  
17 a certain percentage of the incremental cost, a certain  
18 percentage of the project cost, or a certain percentage  
19 of the avoided cost. And all those things are silent  
20 here, so--

21 Q. I take it that the -- well, all  
22 right, rather than open up a debate, you don't have a  
23 number to offer, then, on what kind of incentive levels  
24 you actually are offering?

25 A. We don't have a hard and fast rule.

1 Again, it depends on the marketplace, it depends on all  
2 those special conditions. And those are -- that is  
3 what I think is going to make the difference in our  
4 success.

5 MR. D. POCH: All right. Mr. Chairman,  
6 it would be a good point to break.

7 THE CHAIRMAN: Break until 2:30. Adjourn  
8 until 2:30.

9 ---Recess at 1:05 p.m.

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1 ---On resuming at 2:30 p.m.

2 THE CHAIRMAN: Please be seated.

3 Mr. Poch?

4 MR. D. POCH: Mr. Chairman, I understand  
5 Mr. Campbell wanted to speak briefly to the timing of  
6 some meetings.

7 MR. B. CAMPBELL: Mr. Chairman, today is  
8 the day on the schedule that the Panel 5 statement of  
9 issues is due. I just wanted to let you know that they  
10 were originally, I think, to have been filed on last  
11 Monday. I think the majority were filed last Monday.  
12 There were some that came in through the week last  
13 week.

14 We are close but not quite at a position  
15 where we have got this fully consolidated and  
16 distributed, and I hope to be able to do it by close of  
17 business tomorrow. I am going to send it out at that  
18 point with a covering note that invites people to the  
19 usual discussion that we have about these things. And  
20 I am going to suggest that the parties - not the  
21 Board - sacrifice half of their lunch hour on Thursday  
22 to try and deal with any concerns with the material we  
23 reduced. I just thought, rather than try and catch  
24 everybody here all at once, if I said it once everybody  
25 would hear it and that's what we hope to be able to

1 achieve. The scoping is not until, I think it is now,  
2 on the current schedule, set for September 9th.

3 THE CHAIRMAN: I think it may not be held  
4 on September 9th. I think it may be held, is it  
5 September 10th?

6 MR. NUNN: 16th.

7 THE CHAIRMAN: It's been put off a week.  
8 I am sorry, you didn't know that. I thought perhaps  
9 you did.

10 MR. B. CAMPBELL: No. If the scoping  
11 session has been put off a week then...

12 THE CHAIRMAN: You can have the other  
13 session in the week of the 9th rather than shoehorn it  
14 in this week.

15 MR. B. CAMPBELL: That will be terrific.  
16 It relieves a little pressure in lining up 40 fax  
17 machines to get it out tomorrow as well.

18 In any event, we will make sure that  
19 everybody has lots of time to consider it in advance of  
20 the scoping session which is on the 16th and we will be  
21 prepared for that date.

22 Thank you, Mr. Chairman.

23 THE CHAIRMAN: Mr. Poch?

24 MR. D. POCH: Thank you, Mr. Chairman.

25 Q. Panel, before we broke off we had

1       been talking about the significant difference in the  
2       early plans between the 50 per cent moderate incentive  
3       and 100 per cent incentive and how all the mixed plans  
4       that went forward had a 50 per cent level. Ms. Fraser,  
5       you indicated when I suggested that that was  
6       characteristic of the current programs on average, you  
7       couldn't say that with any confidence because they are  
8       expressed in -- I take it because some of them are  
9       expressed in incentives as a per cent of marginal and  
10      some total and so on?

11                   MS. FRASER: A. Incremental, yes

12                   Q. I am wondering then if we could get,  
13      on a consistent basis, what the overall weighted  
14      average incentive is as a per cent of total customer  
15      costs less OM&A for the programs that are in the PCRD?

16                   THE CHAIRMAN: I'm not quite sure. I may  
17      be missing something. How does OM&A fit into TCC?

18                   MR. D. POCH: Perhaps I should let Ms.  
19      Fraser answer that.

20                   Q. Hydro's OM&A cost for delivering the  
21      programs, do they get captured as a part of the total  
22      customer cost in the --

23                   MS. FRASER: A. They are part of the  
24      total customer cost, but the incentivess aren't part of  
25      the total customer cost because that would be double



1 counting if it were.

2 Q. Yes. And I just wanted to know what  
3 the incentives were then as a per cent of -- I guess  
4 one way of arriving at the same number would be the  
5 total customer cost less OM&A on a weighted average  
6 basis.

7 Would that be something that you could  
8 pull together? I appreciate you couldn't do it today.

9 THE CHAIRMAN: What do you mean by a  
10 weighted average basis?

11 MR. D. POCH: Weighted by the -- well, I  
12 guess on a per average kilowatt and kilowatthour basis  
13 would be another way of expressing that.

14 MS. FRASER: I think we could probably do  
15 it fairly readily on a kilowatt basis. I think on a  
16 kilowatthour basis might be a little more difficult  
17 because of the different load factors subsumed within  
18 one program.

19 MR. D. POCH: Yes. Okay.

20 Mr. Chairman, could I get an undertaking  
21 number for that, if it's acceptable?

22 THE CHAIRMAN: You say you can do that?

23 MS. FRASER: I think we will be able to  
24 do that, yes.

25 MR. B. CAMPBELL: Perhaps we could leave

1 it this way, Mr. Chairman. If we run into problems in  
2 doing this, the panel could advise me and we will get  
3 together with Mr. Poch and kind of sort out the  
4 parameters, if that changes the exact nature of the  
5 request slightly but in order to do it in at least a  
6 moderately efficient manner.

7 THE CHAIRMAN: All right. Well then, can  
8 we put an undertaking number to this.

9 MR. NUNN: That will be 267.2.

10 THE CHAIRMAN: 267.2.

11 MS. FRASER: That's for all current  
12 programs?

13 MR. D. POCH: Yes, I think that would be.

14 MS. FRASER: That is a better way to do  
15 it.

16 ---UNDERTAKING NO. 267.2: Ontario Hydro undertakes to  
17 provide total customer cost less OM&A on  
18 a per average kilowatt and kilowatthour  
basis.

19 MR. D. POCH: Q. Now, these programs  
20 that you include in the PCRD and you have included --  
21 well, the PCRD covers more than the plan, but these  
22 programs you anticipate will get you about a 30 or 31  
23 per cent average penetration rate?

24 MS. FRASER: A. I haven't checked the  
25 overall average lately. I think it is somewhere around

1 there.

2 Q. And so, in essence, we might expect  
3 that for program-driven energy efficiency improvement,  
4 that you would attain roughly 30 per cent of the  
5 economic potential for those technologies?

6 A. Yes, I believe that's a current  
7 estimate.

8 MR. D. POCH: Mr. Chairman, this in fact  
9 just came to my attention, it was one of the  
10 interrogatory answers that came in last week in that  
11 bundle, and I think it would be appropriate to  
12 distribute it at this time and give it an exhibit  
13 number. This is Interrogatory No. 4.7.13.

14 THE CHAIRMAN: Do you want to give a  
15 separate exhibit number for it?

16 MR. D. POCH: Perhaps that would be  
17 convenient, Mr. Chairman.

18 THE CHAIRMAN: Number?

19 MR. NUNN: 261.17.

20 THE CHAIRMAN: You would like to put it  
21 on the interrogatory list rather than on the exhibit  
22 list?

23 MR. NUNN: Your choice.

24 THE CHAIRMAN: Is that satisfactory?

25 MR. D. POCH: Either way, Mr. Chairman.

1 THE CHAIRMAN: It's 261.17.

2 ---EXHIBIT NO. 261.17: Interrogatory No. 4.7.13.

3 MR. D. POCH: Q. Before we have turn to  
4 this, Mr. Campbell suggests, I think appropriately that  
5 I just clarify the use of the 30 per cent number that I  
6 spoke of a minute ago when I was talking about attained  
7 of potential.

8 I am talking about here the program  
9 driven EEI in the plan as opposed to the fuel switching  
10 and standards driven material?

11 MS. FRASER: A. That was 2,000 by 2000?

12 Q. Yes. And indeed it is still 2,000 by  
13 2000 but net, there is a net for the overlap.

14 All right, with that, if we could to  
15 4.7.13 which is Exhibit 261.17. We asked you to  
16 provide an analysis of the attainability that would  
17 result if you went to 100 per cent of the costs of  
18 efficiency improvement measures, and I take it that, if  
19 I can paraphrase your answer, you haven't done an  
20 analysis of that but you estimate nevertheless that you  
21 could get annual penetration as high as 75 per cent of  
22 potential induced EEI if you paid 100 per cent of  
23 incremental costs - and I note there at least we have  
24 all been careful at least for once to say what it is we  
25 are speaking about - incremental costs of electricity

1 efficiency improvement measures and you indicate that  
2 it is only 75 because there would still be some  
3 barriers.

4 Is that a fair paraphrase, Mr. Wilson?

5 MR. WILSON: A. Yes, it is.

6 Q. So, clearly then, if we had a  
7 strategy which lead to much higher or higher, anyway,  
8 levels of incentives, hundred per cent of incremental  
9 costs, as opposed to whatever this number may turn out  
10 to be, but something presumably between that and what  
11 the no-losers test gives you, we would see perhaps more  
12 than a doubling of the penetration rate. So, these  
13 strategy elements - and I guess this is my conclusion -  
14 these strategy elements are constraining. They are  
15 real life constraints?

16 A. I don't think I would characterize  
17 the existing set of levels in the programs today as  
18 being ones consistent with the no-loser test. I know  
19 you are drawing that comparison from the 1986 material  
20 but I don't believe that's our position today.

21 Q. Nevertheless, the hundred per cent  
22 incentives, 100 per cent of incremental cost incentives  
23 would move you from a a 30 to 75 percentage - and I  
24 appreciate this is just an estimate - penetration  
25 level, that is, attainment rate of the economic



1 potential. So, the choice to go with lesser incentives  
2 which is partly due to, we have indicated, partly due  
3 to your strategy elements, the customer must pay and so  
4 on, has lead you -- has been a real constraint in  
5 practice on how much DSM you are going to attain.

6 A. I think the answer to the question  
7 has to come in two parts. The first part is the  
8 programs we have today, and I think by and large the  
9 constraints on what we are attaining today are the kind  
10 that Ms. Fraser and Ms. Mitchell pointed out to us  
11 several days ago or last week, that constraints really  
12 are not on what the insensitive is, but rather how fast  
13 we can move the market, get people's attention,  
14 convince them that there is something worth doing, and  
15 put the talents and materials to work to try to make  
16 the efficiency improvements.

17 The estimate that you see here was  
18 focused on a longer term perspective and as you note,  
19 it says penetration could go as high as 75 per cent.  
20 Now --

21 Q. This is annual penetration?

22 A. Annual penetration, yes. And that  
23 truly is speculative.

24 Ms. Fraser has already illustrated a case  
25 with the street light program where it exceeded 75 per



1 cent, paying substantially less than a 100 per cent of  
2 the incremental cost.

3 Now, I have to characterize this answer  
4 as being more accurately answered in the first  
5 paragraph than the second and third. We haven't  
6 carried out an analysis and we are guessing, as you are  
7 I think, that the number could be higher if you paid  
8 everything. But in the short term that's not even  
9 reasonable and in the long term we are guessing.

10 Q. Well, first of all, let's take in the  
11 long term we are guessing. The 30 per cent then is  
12 just another guess?

13 MS. FRASER: A. Well, a little bit more  
14 than a guess. But what I would point out, that in  
15 order to get a 30 per cent penetration over the 10 year  
16 period, 1991 to the year 2000, given the fact that we  
17 are, you know, like starting a car, to get from zero to  
18 60 miles an hour, you can't do that immediately, and so  
19 there is a ramping up process for a number of reasons,  
20 some of which Mr. Wilson talked about. So, in order to  
21 get an average over that 10 years period of 30 per  
22 cent, that means towards the end of that you are  
23 getting somewhere in the neighbourhood of - depending  
24 on different segments and different programs - 50, 60,  
25 per cent. So, a jump to 75 here is not as much a

1 quantum leap as it might seem if you were just  
2 comparing the 30 per cent to the 75.

3 Is that helpful?

4 Q. I am having a little difficulty  
5 following it. Maybe you could try it again, if you  
6 don't mind.

7 A. Okay. When we estimated the  
8 penetration rates that got us to the 2,000 by 2000 kind  
9 of number, we recognized that there would be a ramp up  
10 in programs that, you couldn't move from, you know,  
11 where we were in 1989 to where the kind of penetration  
12 we wanted to get to immediately, that there was going  
13 to be a ramping up. In that ramping up process, just  
14 by definition, and Mr. Burke talked about this, in  
15 terms of the instantaneous versus dynamic replacement,  
16 for instance, of the existing market, or even of the  
17 new market, that some of those opportunities that you  
18 miss in the early years, you can't get at them again  
19 for, say in the commercial market, an average of 10  
20 years.

21 But in order to get up to an average over  
22 the decade of the 30 per cent that we forecast that  
23 will need to be in order to make -- going back to 2,000  
24 by 2000 number, by the year 2000 the penetration rates  
25 that I was looking at in some of my commercial

1 segments, I think the offices segment in particular,  
2 was up around 60 per cent.

3 So, talking here, in the abstract, about  
4 paying 100 per cent and getting up as high as 75 per  
5 cent, it is not as huge a leap, going from that 60 per  
6 cent to 75 as it might seem like going from a 30 per  
7 cent average to a one year annual average.

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1 [2:39 p.m.] Q. Would we expect then to see, as time  
2 goes on past that magic number of the year 2000, which  
3 we have, I guess somewhat arbitrarily, picked as a  
4 common point to discussion, then that you would  
5 continue to make gains?

6 A. Yes, but as Mr. Burke pointed out,  
7 the potential begins to trail off if you have got  
8 penetration in the existing market.

9 Q. Can I ask then, when you set the  
10 target, the basis for the plan is 2000 for 2000, and  
11 whatever it is for 2014, what did you assume was the  
12 average penetration you were going to achieve for  
13 programs or for technologies in total over the entire  
14 time frame?

15 A. We didn't do our analysis on that  
16 kind of overall basis, at least on a program basis.  
17 What we did, for instance in commercial, we looked  
18 segment by segment, and looking at the different  
19 ownership patterns, looking at the different payback  
20 thresholds exist in those segments, we, you know, we  
21 made different kinds of analysis about what, you know,  
22 we could realistically achieve in that time frame.

23 When that gets added then to a similar  
24 analysis that was done in industrial, and then the  
25

1 analysis that was done a bit more on a technology basis  
2 for residential, when you add those all up together,  
3 you end up with 30 per cent. We didn't start out with  
4 okay, let's get 30 per cent and boom. It is how can we  
5 work through it, and then we looked at the potential  
6 numbers, I screened those potential numbers over the  
7 ten years. Obviously every year we want to keep  
8 getting more and more and more. What is that going to  
9 look like, and how fast can we pull out of the starting  
10 gate as it was.

11 Q. The answer to your analysis is by the  
12 year 2000 you will have obtained 30 per cent of the  
13 economic potential. Do you have comparable numbers,  
14 then for the year, for later years in the plan?

15 A. We didn't do them on a program basis.  
16 I'm not sure if they have been extrapolated or not on a  
17 potential basis.

18 Q. I'm asking basically for -- as I  
19 understand it, you are saying of the economic potential  
20 you have identified, there is whatever the number is,  
21 10,000 including fuel switching and load shifting and  
22 everything else, and you have said you can attain, of  
23 the EEI portion of that, 30 per cent by the year 2000.

24 So, what I would like is to know what the  
25 comparable numbers are for -- for later periods, the

1 total economic and the per cent attainment rate you  
2 assume you will achieve.

3 MR. BURKE: A. Well, the ratio of  
4 obtainable to potential, those are numbers that can be  
5 derived by sector from Exhibit 76, with the possible  
6 exception of the industrial sector, where I don't  
7 believe the potential for 2015 is actually presented in  
8 the document, but if that -- is that what you are  
9 looking for, the sort of the bottom line average of  
10 those numbers?

11 Q. Yes.

12 A. Okay. Well, perhaps we -- I haven't  
13 done that division myself yet, but I can certainly do  
14 it for you the next break and--

15 Q. That would be helpful, all right.

16 Ms. Fraser, then I take it your earlier  
17 evidence is if it turns out that the averages--

18 THE CHAIRMAN: Excuse me, Mr. Poch. Do I  
19 infer correctly that the reason that you haven't done  
20 an average up to this point is because you do analyze  
21 the penetration program by program, sector by sector,  
22 and therefore there is not great significance in the  
23 average? Is that too much of a jump?

24 MR. BURKE: I think that is fair. That  
25 for each commercial building segment there is a



1 penetration rate, for each industrial SIC group, there  
2 is a penetration rate, for residential each technology  
3 has a penetration rate, and it applies to the stock as  
4 it turns over. And as we exhaust the existing stock,  
5 it then applies purely to new stock and so on.

6 So yes, it's not something we do on  
7 average and then disaggregate it. It is something we  
8 do on a sort of end use or however, we structure each  
9 of the analyses of potential EEI, potential induced  
10 EEI, beyond the five years covered by the business plan  
11 that energy management branch produces. For each of  
12 those segments there is a penetration rate, which is  
13 multiplied times the potential to get the attainable  
14 end-use EEI, and the result is the result. But I guess  
15 we haven't calculated that beyond the year 2000. We  
16 can easily do that, though.

17 MR. D. POCH: Q. To guide you in that,  
18 Mr. Burke, I basically want to be able to look at this  
19 exhibit where you say 75 per cent of potential induced  
20 EEI, if Hydro paid 100 per cent of the incremental  
21 costs. I want to know what, in fact, are the numbers  
22 as currently envisaged, what per cent of potential  
23 induced EEI, and what per cent of incremental costs.  
24 And that's what I'm trying to get at, understand, where  
25 your plan is versus this alternative presented in

1 Exhibit 261.17.

2 MR. BURKE: A. Nothing I have said  
3 refers to the per cent of incremental costs. I can do  
4 the division of attainable and induced to get you that  
5 sort of bottom line penetration rate. But in terms of  
6 assumptions, as far as per cent of incremental cost, I  
7 believe we are keeping those assumptions the same right  
8 through the period, and that leads to sort of the same  
9 policy effectively right through the period.

10 But as Ms. Fraser indicated, the  
11 penetration rates build over the decade. However, they  
12 may build in segments that become exhausted  
13 essentially. If you are replacing the higher, higher  
14 proportions of existing stock, and then you now  
15 relegate it to the new segment of the marketplace,  
16 there may just be a flat penetration rate that applies  
17 to the new segment.

18 Q. Well, I could maybe cut through this.  
19 I'm just trying to understand, if you changed your  
20 policy today and said, "We are going to pay 100 per  
21 cent of incremental costs," how much more penetration  
22 would you achieve by say 2000, how much more would you  
23 achieve by 2014, how much more of the economic  
24 potential would come to be?

25 And I had thought that's what this

1       interrogatory was supposed to answer, and now I guess  
2       you are telling me it is not quite that clear that it  
3       answers it.

4                   MR. WILSON: A. The interrogatory  
5       answers -- when it was prepared the people doing it  
6       were thinking of the year 2000 instead of 2014, and I  
7       think the essence of it was that if the full  
8       incremental costs were being paid, then certainly a  
9       mature level of annual penetration could be as high as  
10      75 per cent. Sort of on average, and that's a  
11      notional, and certainly not as complex or as complete  
12      as the analysis we have just been discussing.

13                  Q. And you are saying it would achieve  
14      75 per cent cumulative, in effect, we'd get up to a 75  
15      per cent penetration rate achieved by the year 2000?

16                  A. No, not cumulative, no. The annual  
17      rate would peak at 75 per cent.

18                  Q. What do you mean by an annual rate  
19      then, what's the denominator?

20                  A. Well, in each year there are so  
21      many -- go to houses, there are so many new houses  
22      being built, there are so many major renovations being  
23      done, and so many refrigerators and so on being  
24      replaced. Now, as Mr. Burke described in his time  
25      dependent kind of replacement market, that creates an

1 estimate of the potential in each year.

2 Now, that's the total opportunity in that  
3 year, and this estimate says that 75 per cent of the  
4 kilowatts or megawatts that could be saved would be  
5 saved.

6 Q. All right. And so then, Mr. Burke,  
7 your comment about potential and decline thereafter, it  
8 simply means we'd be looking at 75 per cent of a  
9 shrinking pie thereafter.

10 MR. BURKE: A. That's correct, yes.  
11 Maybe, a comment for the commercial sector, for  
12 instance on page 49 of Exhibit 76, it says

13 "While the average penetration rate  
14 over the decade is estimated to be about  
15 35 per cent, the annual rate achieved in  
16 the year 2000 is expected to be about 50  
17 per cent in aggregate for the commercial  
18 sector. Beyond the year 2000, the  
19 aggregate commercial sector annual  
20 penetration rate is assumed to continue at  
21 50 per cent per year. By 2015 the net  
22 load impact of commercial sector  
23 efficiency improvement programs is  
24 estimated to be 2080 megawatts."

25 And I could look up the potential and

1 that's how I would get you your average. But I guess  
2 it, for the commercial sector, it is making concrete  
3 what we have said, that the rate ramps up over the  
4 decade. Beyond the year 2000, though, the rate that we  
5 achieve by the year 2000 is maintained through to 2015.

6 Q. And your assumption of the commercial  
7 sector is that with the current program design and  
8 targets and so on, and incentive levels, you will peak  
9 at about 50 per cent, and it will level off there.

10 A. That's what Exhibit 76 has in it,  
11 yes.

12 Q. And what do we have? Are there  
13 comparable numbers for residential?

14 A. Yes, I think there would be. I could  
15 look them up.

16 Q. Would you be so kind, and maybe we  
17 will come back to this then.

18 Panel, have you done the equivalent of a  
19 sensitivity study or set of sensitivity studies to  
20 determine the impact the different sets of principles  
21 might have on the DSM plan? For example, paying 100  
22 per cent of DS measures and delivering them yourself?

23 MS. FRASER: A. No, we don't have enough  
24 information to do that kind of analysis yet, in terms  
25 of experience.



1 Q. And I take it then you wouldn't have  
2 done money is no object? (laughter)

3 What about a sensitivity analysis to what  
4 it would mean if you counted the externalities of  
5 supply that you can avoid? You haven't done that?

6 A. No.

7 MR. WILSON: A. There was an analysis  
8 done of the sensitivity of attainable EEI, two  
9 different levels of avoided cost, which is, I suppose,  
10 a proxy to -- a way of getting at the question you just  
11 asked, and that is presented in Exhibit 3.

12 Q. And that, I take it, is the -- Mr.  
13 Burke's evidence that he doesn't believe there is more  
14 out there to be had, right? Is that the gist of that?  
15 That if avoided cost go up, you don't expect potential  
16 to go up.

17 A. What I said was on the basis of the  
18 information which we have, which we consider reliable  
19 and based on commercially proven technologies, that  
20 yes, there is not much additional potential that  
21 becomes available by increasing the avoided cost.

22 There are some elements, especially in  
23 the residential sector, for weatherization measures  
24 where you can take combinations of weatherization  
25 measures that are clearly sort of very expensive to do,



1 having already insulated the house or installed a heat  
2 pump, then go further, and we have -- we can calculate  
3 combinations of technologies that yield 10 cents, 12  
4 cents per kilowatthour lifecycle unit energy costs, but  
5 the incremental savings from these sorts of measures  
6 are very small. And as I pointed out in my direct, a  
7 lot of this may be irrelevant in the context that we,  
8 in fact, switch those houses to some other fuel in  
9 total.

10 So yes, effectively we don't believe that  
11 we can identify at this point much more potential above  
12 and beyond the avoided cost. And we also believe that  
13 if you look at other supply curves of other  
14 jurisdictions, that it costs about 5 cents or so a  
15 kilowatthour avoided cost, which is typical of Hydro's  
16 avoided cost numbers, although they range widely  
17 depending on the load factor of the saved energy.  
18 There are not large entries on those supply curves  
19 either at higher cost.

20 Q. We will come back to the details of  
21 this later. I'd like to move on.

22 Could you turn up--

23 MR. SHALABY: A. Before we leave that  
24 point just on the sensitivity of higher incentives,  
25 there is a discussion in the Demand/Supply Planning

1 strategy, the final strategy, which is Exhibit 74, page  
2 47. It gives reasons for not going to 100 per cent as  
3 a rule of thumb. It is not analytical, numerical  
4 sensitivity studies, but there are considerations that  
5 are enumerated there, why using that as a rule of thumb  
6 may not be a good idea.

7 Q. Well, I promise you, Mr. Shalaby, I  
8 will come back to those five reasons. I had noticed  
9 them.

10 Could you turn up Volume 3 of the  
11 background materials we have provided, which is Exhibit  
12 271, page 44. This is an excerpt from Exhibit 146, I  
13 believe it is, the review under the Environmental  
14 Assessment Act of Ontario Hydro's DSP, June '90. This  
15 was, as you can see, a discussion under the heading  
16 section 5(3) requirements.

17 THE CHAIRMAN: Do you happen to know  
18 whose comments these were?

19 MR. D. POCH: These were under the  
20 section 5(3) requirements, so I take it these were the  
21 Ministry of the Environment comments.

22 THE CHAIRMAN: Right.

23 MR. D. POCH: Thank you.

24 Q. And it says there, the question is  
25 posed:

1 "To what extent then have the--"

2 Well, let me stop. Let me ask first of all, the  
3 demand/supply management plan is part of the rationale  
4 offered for the DSP?

5 MR. B. CAMPBELL: Sorry, the  
6 demand/supply management plan?

7 MR. D. POCH: I am sorry, the demand  
8 management plan.

9 Q. The demand management plan is part of  
10 the rationale offered for the DSP?

11 MR. SHALABY: A. Well, I'm still working  
12 on the legalese of that, but I think the demand  
13 management plan is part of the context within which the  
14 approvals that are being sought are presented. We are  
15 seeking approvals, that is the DSP, and the approvals  
16 are presented within the larger context of a  
17 Demand/Supply Plan, and the demand management plan is  
18 part of that.

19 Q. Leaving aside--

20 A. But the word rationale, I don't  
21 know--

22 Q. Let's leave aside the legal  
23 interpretation of that word. I won't take this as your  
24 legal argument. But just in terms of common usage, you  
25 are here seeking approval for some generators, and the

1 basis, the way you are trying to convince us that you  
2 need those generators, your rationale, is that this DSM  
3 plan and NUG plan, you are going to give them top  
4 priority, but it just isn't enough, given the load  
5 forecast.

6 A. That's right.

7 Q. So, the question is then posed in  
8 Ministry of Energy comments there:

9 "To what extent then" --

10 I am sorry, Ministry of Environment  
11 comments:

12 "To what extent then have the  
13 rationales for which Hydro is now seeking  
14 approvals been developed through a  
15 process of identifying and comparing  
16 alternatives in terms of their various  
17 environmental effects."

18 And so I would ask you then, to what  
19 extent have you examined various demand side management  
20 approaches by comparing the relative environmental  
21 effects?

22 A. Is rationale here used in the same  
23 way you explained it?

24

25

...

1 Q. Whether or not it is, I would like to  
2 interpret it that way so that I can pose that question.  
3 Let us assume it is then.

4 A. The question is: What extent had the  
5 rationales for which Hydro is now seeking approvals?

6 Hydro is seeking approval for the need  
7 and rationale of supply facilities. For that reason, I  
8 would say the word "rationale" in this sentence is very  
9 different from what we have just discussed.

10 Q. Is it your position - and this one  
11 your counsel may wish to get involved in - that you are  
12 not seeking approval in any sense for the demand  
13 management plan as the basis of need for the supply  
14 plan?

15 MR. B. CAMPBELL: You are right, I would  
16 like to get involved.

17 We are not seeking approval for any  
18 aspect of the demand management plan. We take the  
19 position that no approval is required under the  
20 Environmental Assessment Act for any aspect of that  
21 plan.

22 We do take the position that it is a  
23 consideration in determining whether supply facilities  
24 are required given that the corporation has taken the  
25 view that it will give priority to demand measures over

1 supply measures.

2 MR. D. POCH: Well, Mr. Chairman, to be  
3 clear, we take the position that the demand management  
4 plan is part of the rationale for the undertaking, and  
5 the words, I don't have the act in front of me, but I  
6 am trying to mimic the words of section 5(3), and I  
7 would just ask my friend to clarify if he agrees with  
8 that or not.

9 THE CHAIRMAN: He has done so, as I  
10 thought I heard him. But in the context of the  
11 question, incidentally, I just mention parenthetically  
12 that this is one page out of MOE's comments, and it's  
13 not clear to me whether they themselves made any  
14 reference to demand management as such in dealing with  
15 the subject in the review. Whether they did or not I  
16 don't think matters. Perhaps if you could just pose  
17 the question you want to ask the panel about this and  
18 we will go on from there.

19 MR. D. POCH: Q. Let me pose the  
20 question then. To what extent has the supply plan for  
21 which Hydro now seeks approval been developed through a  
22 process of identifying and comparing alternative demand  
23 management plans in terms of their various  
24 environmental effects, including the net supply  
25 effects?



1 MR. SHALABY: A. I think we have gone  
2 over that ground before, and that is we have identified  
3 a singular demand management plan. And the reason we  
4 have done that is that we wanted to identify the  
5 maximum amount under the demand/supply planning  
6 strategy elements that we have.

7 Now, if you consider the alternatives  
8 that were gone through leading to the development of  
9 the demand/supply planning strategy, and we discussed  
10 that this morning, there were alternative ways of  
11 doing demand management that we thought of and we  
12 decided that going for the maximum level, subject to  
13 the strategy elements, is the way to go, and that was  
14 the singular plan that we worked with.

15 Q. So, is it your evidence for both  
16 potential and attainable, that what you were  
17 presenting, 2,000 by 2000, whatever it is by 2014,  
18 that's it, that's the maximum? It doesn't matter if we  
19 change the rules?

20 I thought we established this morning if  
21 we changed the rules --

22 A. It does matter if we change the  
23 rules. What we presented was a still photograph that  
24 was taken in late 1989. That was the maximum at the  
25 time that we can present. And as the life goes on and

1 life changes, we are presenting you more updated  
2 photographs.

3 Q. But if we had changed the rule, for  
4 example, on fuel switching then, we would have gotten a  
5 different number just as we have seen today.

6 A. Yes.

7 Q. So, what I am asking you, are there  
8 any alternative DSM plans offered where you changed  
9 those strategy elements, just as you have done in one  
10 instance, or is being threatened to be done to you in  
11 one instance, the change in the fuel switching?

12 A. Well, I may be repeating and I don't  
13 know whether that's being helpful or being stubborn.  
14 Before the demand supplying planning strategy was  
15 finalized, you yourself referred to Plan AD and Plan J  
16 Plan G and so on. Those were areas of exploring what  
17 the best combination would look like, and once we  
18 became convinced of a mixed plan with moderate  
19 incentives is the best way to go, that became our  
20 fundamental direction that we went to.

21 So, there were no alternative demand  
22 plans once we got to the 1989 stage of the exercise.  
23 There were some before that.

24 Q. So what you are saying is the  
25 economic potential and the attainable that you are

1 offering us are the maximum based on that narrowing  
2 down to a mixed plan with moderate incentives?

3 A. And all the other strategy elements  
4 that are written up, yes.

5 Q. Right. And you are not offering us  
6 today a different set of economic potential and  
7 attainable, or even just attainable, based on a  
8 different selection or a different -- based on a  
9 different set of strategy elements?

10 A. Well, of course, you have been  
11 offered 1500 more megawatts in fuel switching  
12 standards.

13 Q. On one change.

14 A. Yes.

15 Q. All right. You don't have a set of  
16 other options for us to select, I take it? You have  
17 narrowed down the strategy and you have narrowed down  
18 the options to ones that are mixed with moderate  
19 incentives, and you say within that strategy and  
20 narrowing process, this is the maximum?

21 A. As presented in the documents, yes.

22 Q. All right.

23 MR. B. CAMPBELL: Just a minute. I'm  
24 sorry, just a minute.

25 I just want to be clear, Mr. Poch. I

1 think we have used several phrases through this  
2 discussion. Are we talking about potential or  
3 attainable here, the estimate of attainable? Because I  
4 think it makes a significance difference and I would  
5 like to be clear what you are asking.

6 MR. D. POCH: Let's talk about either.

7 MR. B. CAMPBELL: I'm sorry, you are  
8 asking the questions.

9 MR. D. POCH: Let's clarify.

10 MR. B. CAMPBELL: Would you be clear,  
11 please, as to whether you are speaking potential or  
12 attainable, because, in my submission, it makes a  
13 significant difference to this discussion.

14 MR. D. POCH: Q. Mr. Shalaby, does your  
15 answer depend on whether it's potential or attainable?

16 MR. SHALABY: A. I think the potential  
17 will change if you look at areas that are -- that have  
18 been ruled out, like fuel switching, and the attainable  
19 will change if you change the mechanisms by which you  
20 can get at that potential. So, they both can differ if  
21 your rules of the game can change, yes.

22 Q. Depending on which rule you change?

23 A. That's right.

24 Q. Thank you.

25 A. Now, I think I want to put all this

1 discussion in the context of the dynamic nature of  
2 program design and program delivery. This is a  
3 snapshot that was given in late '89. People delivering  
4 programs will find what works and what doesn't, and  
5 some will need more incentives, some will need less,  
6 some would need more media, some would need less, and  
7 so on.

8 So, I think speaking about demand  
9 management as a singular activity is not doing service  
10 to the diverse nature of all the programs and the  
11 marketplaces and the products and so on.

12 So, when you say moderate incentives and  
13 maximum this and that, the strategies are very, very  
14 different, depending on the market segment and the  
15 product and the time. We are oversimplifying by putting  
16 all of that together as one lump, that's what I am  
17 saying.

18 Q. Well, all right. And just harkening  
19 back back then to the discussion we had about Plans J,  
20 G and AD. In Volume 3, which is Exhibit 271, at page  
21 10, where some of them are ranked by the socio-economic  
22 and environmental factor, in the text above, it says if  
23 socio-economic considerations predominate, then the  
24 preferred plans are those with high demand management  
25 incentives, G and J. And it says if avoiding



1 environmental impacts is emphasized, then plans with  
2 high levels of demand management and minimizing use of  
3 fossil fuel, fossil plant are preferred, and they offer  
4 Plan J.

5 Mightn't we surmise that since Plan AD, I  
6 think it was called, has both of those, avoids fossil  
7 and has high demand management incentive, it would also  
8 be one which scores well on socio-economic and  
9 environmental; isn't that a fair reading of that?

10 A. We have been through that this  
11 morning. I don't know why you want to repeat that.

12 Q. Do you not read this as I do, Mr.  
13 Shalaby?

14 A. No.

15 Q. All right. Sustainable development  
16 is not one of your strategy elements per se, is it?

17 A. That word is not used extensively in  
18 our documents. It may be but I don't recall.

19 Q. Is it your position that your  
20 strategy is consistent with a sustainable development  
21 approach or is on the road towards, or how would you  
22 characterize it?

23 A. I think I would if you characterize  
24 what sustainable development means, we can start  
25 comparing our strategy to it. But I think sustainable



1 development is a word that's been used by many to mean  
2 different things.

3 Q. You haven't gone through an exercise  
4 then of, in essence, trying to ascertain what this  
5 commitment to sustainable development we have heard so  
6 much about at all levels of government means and  
7 whether this conforms to that?

8 MR. BURKE: A. I might remind you of the  
9 discussion we had in Panel 1 about this topic which  
10 essentially we noted that for the purpose of producing  
11 load forecast, we did not have specific enough  
12 indications from either the Ontario or the federal  
13 government what it was that they were prepared to do to  
14 operationalize the concept of the sustainable  
15 development to be able to plan on it. I think we  
16 certainly have a sense of the range of definitions that  
17 people use for the term and it can lead to quite a  
18 range of outcomes.

19 We indicated then that we will certainly  
20 study this more and more and look for more concrete  
21 expressions of what people are prepared to do to  
22 achieve sustainable development, but from the point of  
23 view of forecasting the demand for electricity in  
24 Ontario, we had not reached a concrete enough stage to  
25 be able to explicitly take sustainable development into

1 account in the load forecast. That's part of the plan,  
2 but it's not the whole plan.

3 Q. I am sorry, what is part of the plan?

4 A. The load forecast. But it's not all  
5 of the planning considerations, but it certainly gives  
6 you a flavour of where one part, an important part of  
7 the plan came down on the issue of sustainable  
8 development.

9 Q. I would like to turn to another  
10 principle which doesn't, at least explicitly, appear on  
11 the list, and that's the notion of minimizing energy  
12 services costs.

13 MR. SHALABY: A. Before we leave that I  
14 draw to your attention, there is a discussion about the  
15 concept of sustainable development and the relationship  
16 of Hydro's plan to that in Exhibit 4, pages 3-2 and  
17 into page 3-3. And maybe I will read a bit from page  
18 3-3 of Exhibit 4. It says:

19 Evaluation criteria were selected that  
20 are consistent with the concept of  
21 sustainable development. That is, that  
22 the needs of present generations (for  
23 electricity or any other materials) must  
24 be met without compromising the ability  
25 of future generations to meet their own

1 needs.

2 And then it says that this concept was  
3 introduced by the U.N. study, and so on.

4 So, there is a discussion here that  
5 attempts to link the criteria we use in evaluating our  
6 plans and our alternatives to the concept of  
7 sustainable development to the extent that we interpret  
8 it.

9 The only point I was making was that the  
10 interpretation of the concept is debatable and it's  
11 subject to discussion. But that's our attempt and it's  
12 on page 3-3 of Exhibit 4.

13 Q. Thank you. Turning to minimizing  
14 energy services costs, this is not one of your stated  
15 strategy elements, I take it, and I will use the word  
16 energy services as opposed to electricity, or  
17 electricity service.

18 MR. BURKE: A. Well, my understanding of  
19 the way we do our integrated resource planning with the  
20 total customer cost test is that it comes very close to  
21 that, especially now that we are including fuel  
22 switching as an option. I'm not sure that there is  
23 that much of a significant difference between what we  
24 are doing and effectively minimizing energy service  
25 costs.

1 Q. Can I refer you to Volume 3, Exhibit  
2 271, at page 34. This is an excerpt from the  
3 Demand/Supply Option Study, which preceded the supply  
4 strategy study, and the volume this comes from is  
5 called the Options Report, 652 SP, February '86, which  
6 is Exhibit 57 in these proceedings, and I would like to  
7 read you the bottom paragraph there.

8 THE CHAIRMAN: It says 56.

9 MR. D. POCH: I'm sorry.

10 THE CHAIRMAN: Is it 56 or 57?

11 MR. D. POCH: We can check that.

12 THE CHAIRMAN: We can check it right now.

13 MR. D. POCH: Yes, Mr. Chairman, if you  
14 just turn the page back in my exhibit, we have  
15 reproduced the cover and it does say No. 56 on it, you  
16 are correct.

17 THE CHAIRMAN: Right. Anyway, it's page  
18 34 of Exhibit 271.

19 MR. D. POCH: Q. Any if I could direct  
20 to you the bottom of the paragraph, it says:

21 Resource conservation: To determine  
22 the role demand reduction should play in  
23 Ontario we need to consider when an  
24 energy form, like electricity, should be  
25 conserved. Our conservation goal should

1 be chosen only when all the energy forms  
2 our society uses are included in the  
3 analysis. This broader perspective  
4 allows us to accurately assess which  
5 energy forms should be conserved and  
6 which should be brought into greater use.

7 Am I correct in understanding that  
8 observation, if not stated principle, as meaning that  
9 the role of demand management should be determined by  
10 starting with a consideration of the demand for energy  
11 services regardless of the energy form which provides  
12 them?

13 MR. BURKE: A. I think in theory that is  
14 correct. I think it would be ideal if the provincial  
15 government were to have a complete view about the way  
16 all fuels should be used and all applications in  
17 Ontario.

18 In practice, though, Ontario Hydro  
19 focused on efficiency improvement in electricity  
20 because at least in doing so we wouldn't commit errors  
21 as far as the use of other fuels was concerned. But I  
22 think there is no doubt that there might be some  
23 optimization that may occur for the energy system as a  
24 whole in Ontario if all fuels were examined  
25 simultaneously from the perspective of demand



1 management.

2 When we forecast load we look at all  
3 fuels and determine electricity's share in the  
4 marketplace without intervention. But if one asks the  
5 question, how should intervention occur in the  
6 marketplace, I think, yes it would ideally occur from a  
7 perspective of all energy forms. And I think what can  
8 happen is that sometimes it might be optimal to move  
9 into electricity use in some applications, and in  
10 others it may be optimal to move away from electricity  
11 use.

12 Q. I knew I could count on you to say  
13 that.

14 Could you turn with me in this same  
15 volume of materials to page 14. This is part of the  
16 excerpts we have provided from the report of the Royal  
17 Commission of Electricity Power Planning, which is  
18 usually referred to RCEP or the Porter Commission,  
19 February '80 report. And I take it, Mr. Burke, that  
20 this notion of energy services being the appropriate  
21 place to start, we are at page 14 of our exhibit, is  
22 not new. And I point you to recommendation 3.3, that  
23 Hydro should employ as a useful analytical device for  
24 load forecasting purposes, the distinction between  
25 captive and competitive end uses of electricity. ...



1 [3:29 p.m.] Are you familiar with that  
2 recommendation?

3 A. Yes.

4 Q. And at page 15, you can see the  
5 section we have highlighted:

6 "In the previous chapter we stressed  
7 the urgent need for a comprehensive data  
8 bank relating to the end uses of energy  
9 and in particular electric energy. This  
10 is required not only for load  
11 forecasting, but also to make effective  
12 decisions relating to how energy can be  
13 utilized more efficiently. For example,  
14 is electric space heating an efficient  
15 use for electric power? When energy use  
16 patterns are available, it will be  
17 possible to answer such crucial  
18 questions, and to assess the extent to  
19 which alternative technologies,  
20 especially those based on solar energy,  
21 can be utilized."

22 Mr. Burke, given these recommendations  
23 outstanding from 1980, do you have a load forecast that  
24 distinguishes between captive and competitive uses for  
25 electricity?

1                   A. We don't label the elements in the  
2                   load forecast that way, but it certainly would be  
3                   possible to, given the detail that we have in our  
4                   end-use models, go down through the list and make clear  
5                   which ones are more obviously captive and some which  
6                   are more obviously competitive, and then there would be  
7                   a gray area for some end uses.

8                   Q. Given the apparent willingness of  
9                   government to see some shifting between fuel forms as a  
10                  positive strategy, would you agree that it is now  
11                  appropriate to make that distinction in your planning?

12                  A. Well, Exhibit 258, maybe I should say  
13                  Exhibit 257, the one that looks at potential, has gone  
14                  through a process of identifying cost effective  
15                  opportunities for switching from electricity to other  
16                  fuels. And it's not something that should be in a load  
17                  forecast. I'm not sure whether I caught you correctly  
18                  as implying that it should now be in the load forecast.

19                  But certainly as far as a planning  
20                  consideration, with the option to switch fuels, we  
21                  should be systematically screening opportunities for  
22                  fuel switching, just as we systematically screen  
23                  efficiency improvement opportunities.

24                  Q. Was that report authored by Dr.  
25                  Buja-Bijunas?

1 A. Which one?

2 Q. The potential for fuel switching  
3 report.

4 A. No, it was produced by a group in the  
5 economics and forecast division. It is, as the cover  
6 indicates, it was produced in the energy economic  
7 section, and the data used in it are data that are from  
8 the load forecast at some stage. Certainly the data  
9 are consistent with the data in Exhibit 76, and the  
10 identification of end uses, which are eligible for fuel  
11 switching, was something that was discussed in the  
12 division.

13 Q. Do I understand from that answer then  
14 that you did not, in fact, produce Exhibit 57 --

15 MR. B. CAMPBELL: 257?

16 MR. D. POCH: 257, excuse me, thank.

17 Q. Based on a detailed worked up from  
18 your end use forecasting data bank of the specific  
19 captive versus competitive. You haven't parsed that  
20 and gone through and found if you've got all the  
21 opportunities?

22 MR. BURKE: A. I think it is quite  
23 equivalent to doing that. For the residential market  
24 particularly, we identified the four end uses where  
25 fuel switching was possible, and we have taken you

1 through the space heating, water heating, cooking and  
2 clothes drying, and how we for a variety of reasons  
3 eliminated the two smallest ones and focused on the  
4 space heating and water heating. All of the data  
5 involved in the analysis of space heating and water  
6 heating come from the 1990 load forecast and were  
7 transmitted to that group that looked at efficiency and  
8 improvement opportunities last fall when they were  
9 doing their analysis of EEI potential.

10 So, essentially, a spread sheet analysis  
11 was done in the time available of the potential for  
12 fuel switching based on the same load data for the year  
13 2000 that is used in Exhibit 76. I don't believe that  
14 there is any opportunities that are missing because of  
15 the way the analysis was done, and that there is any  
16 discrepancy between the information in the load  
17 forecast and the information in Exhibit 257.

18 Q. I thought you'd already told me that  
19 you've not actually gone through and done a captive  
20 versus competitive analysis.

21 A. I think what I'm telling you is that  
22 for the residential sector, the ones where competition  
23 occurs are the four that I mentioned.

24 Q. All right. Let's look at those. We  
25 will be coming back to these exhibits later, but you've

1 told us you just excluded further analysis of cooking  
2 and clothes drying, because it would be viewed as  
3 impinging upon people's choices where there is a matter  
4 of some tastes or a different service involved, at  
5 least in the case of the cooking. I guess I understand  
6 why you might be hesitant to suggest that for  
7 mandatory.

8 A. It is also very small.

9 Q. I understand why you might have  
10 suggested that on the mandatory side. But can you  
11 explain why there are no programs which might give  
12 people an incentive reflecting the societal savings we  
13 would all reap? Not mandatory, just an incentive for  
14 changing fuels for cooking or for clothes drying?

15 A. Well, I think it is something you  
16 could look at in more detail in future. You'd have to  
17 say that, as we have in Exhibit 257, this is a  
18 preliminary look at the potential, given the recent  
19 inclusion of the possibility in the Act, Power  
20 Corporation Act. Pending inclusion of this possibility  
21 in the Act, we felt it was appropriate that we come to  
22 this panel with some analysis of the option.

23 And I am not saying for all time that  
24 cooking and clothes drying need to be excluded. It's  
25 just they are small options, they face additional



1 barriers, I think, that space heating and water heating  
2 don't face. I don't think they materially affect the  
3 results, and, if we look at it in future and find that  
4 there is a market in the clothes washer area, clothes  
5 dryer area, rather, I'm sure we will pursue that. But  
6 in the time available for this study, we didn't think  
7 we were going to miss much by leaving that segment out.

8 Q. I take it that switching from  
9 electric clothes drying to gas clothes drying is  
10 presumed to be cost effective with the total customer  
11 cost test.

12 A. Well, frankly I don't have a lot of  
13 good information on gas clothes dryers at this point.  
14 And so I'd have to acquire that. And it certainly is a  
15 case that you would consider it only in conjunction  
16 with gas already available in the house. So, you are  
17 dealing what a subset of a subset, and you know how my  
18 pie charts went. This would be a smaller slice of the  
19 intersection sets of these pies.

20 Q. I take it you haven't studied what  
21 the economics are of bringing gas into a house where  
22 there is a gas main available, but just bringing a spur  
23 into the house where you are talking about switching  
24 over a house to heating, water heating, and say clothes  
25 drying, too, what the economics are on the gas side of

1       that?

2                   A. Well, I think what we have indicated  
3       is that for space heating, without the need for duct  
4       work, that is where it is an electric central furnace  
5       so there is duct work in place, that the economics are  
6       clearly there, and that the economics become less  
7       obvious, as you have to add duct work. So, we were  
8       restricting the market to only single-storey houses  
9       with baseboards.

10                   When you add water heating, that is you  
11       can add the gas load associated with water heating to  
12       that house, then economics improve. So, the  
13       combination of a single-storey baseboard with water  
14       heating is quite an attractive combination. That's  
15       about as far as we've taken it at this point.

16                   Q. My memory of the evidence from Panel  
17       1 was that there was a large increase in the end-use  
18       forecast, this was a large increase in the commercial  
19       and residential forecasts in the other category, and  
20       indeed clothes dryers were in this other category, is  
21       that accurate?

22                   A. Yes. I don't think there are too  
23       many clothes dryers in the commercial sector, but yes--

24                   Q. In the residential.

25                   A. --there are some. However, I think

1 those statements are true, but it doesn't follow that  
2 clothes dryers were necessarily one of those loads that  
3 we considered to be growing rapidly. I think that  
4 technology - that has reached pretty well saturation in  
5 the marketplace.

6 Q. Could I ask you just to provide us  
7 then with the amount of clothes dryer load in Ontario?  
8 And I take it we could just do the pie chart analysis  
9 to decide what fuel switching potential there is, Mr.  
10 Burke? Is that right?

11 A. Yes, well, I, as I say, I don't have  
12 a lot of information on the economics of gas clothes  
13 dryers. Maybe someone else on the panel does.

14 THE CHAIRMAN: You want the electrical  
15 clothes dryer load to start with, is that right?

16 MR. D. POCH: Q. Yes, present load and  
17 in the load forecast. I assume this is something that  
18 the forecast is part of the end-use forecast. It is  
19 just a matter of digging it out.

20 MR. BURKE: A. It is not an explicit  
21 forecast. It could be one of those items that Dr.  
22 Buja-Bijunas indicated we did a credibility check with,  
23 but it is not an explicit output of REEPS model.

24 Q. Perhaps if I could be given that  
25 undertaking, you could provide us with any caveats that

1 you feel are appropriate, given that it is not an  
2 explicit analysis.

3 THE CHAIRMAN: Number?

4 THE REGISTRAR: 267.3.

5 THE CHAIRMAN: 267.3.

6 ---UNDERTAKING NO. 267.3: Ontario Hydro undertakes to  
7 provide the electrical  
8 clothes dryer load, both  
present load and in the load  
forecast.

9 THE CHAIRMAN: Should we take the  
10 afternoon break now?

11 MR. D. POCH: That's fine, Mr. Chairman.

12 THE CHAIRMAN: All right, we will take  
13 the afternoon break; 15 minutes.

14 ---Recess at 3:42 p.m.

15 ---On resuming at 4:00 p.m.

16 THE CHAIRMAN: Be seated, please.

17 MR. D. POCH: Thank you, Mr. Chairman.

18 Q. Can I take it from our discussion  
19 earlier, Mr. Burke, you agreed that in principle the  
20 correct starting point for determining the role of  
21 demand management is not electricity service but energy  
22 service, as was suggested back in I think it was '65  
23 or -- or rather '75 or '77, in those documents?

24 MR. BURKE: A. Yes.

25 Q. But despite that, until a month ago,

1 Hydro and thus the Balance of Power did not plan on  
2 that basis?

3 A. Is that a question?

4 Q. Yes. It may be an obvious one, but  
5 it is a question.

6 A. I think that if -- it is clear --  
7 well, I shouldn't say it's clear, but it has not been  
8 apparent to me, anyway, that the Ministry of Energy has  
9 done this sort of analysis within which to embed the  
10 electrical efficiency improvement work or the fuel  
11 shifting work that Ontario Hydro is currently  
12 undertaking.

13 And I think failing that, it really was  
14 almost none of Hydro's business to pronounce on how the  
15 consumers of other energy forms should go about using  
16 energy. And to plan on the basis of changes in how  
17 other energy fuels -- how other fuels should be used in  
18 the province. So that, I think, accounts for why we  
19 focused on electrical efficiency improvement.

20 Q. You think Dr. Porter was wrong, it  
21 wasn't appropriate to obtain that data base that he  
22 suggested and do the competitive versus captive  
23 analysis and so on to get into that discussion?

24 A. For load forecasting purposes,  
25 Hydro -- it is appropriate for Hydro to do this sort of



1 load forecasting. For energy planning purposes or  
2 energy strategy purposes for the province as a whole,  
3 I'm not sure that the Porter Commission recommendation  
4 suggested Hydro be doing that. I think it is the role  
5 of the Ministry of Energy.

6 Q. But clearly Dr. Porter was talking  
7 about the importance of gathering information to form  
8 the basis for a discussion, as he referred us to, to  
9 this question of whether, for example, electric heat is  
10 a good idea.

11 A. Well, to a large extent Hydro has  
12 gathered that sort of information. We just haven't  
13 necessarily used it, given that it was not, perhaps,  
14 our role to do so until very recently.

15 MR. B. CAMPBELL: And with respect, Mr.  
16 Poch, I think it is fair to point out that Royal  
17 Commission recommendations in Ontario are made to the  
18 government, not Ontario Hydro.

19 MR. D. POCH: Q. All right, let's move  
20 past this question of the framework, the energy  
21 services framework you have or haven't used, I think we  
22 should say you haven't used for the plan, and look  
23 simply the question of the different manner that supply  
24 and demand-side options for electricity are treated by  
25 Ontario Hydro.

1 First of all, I take it there is no  
2 explicit principle in or strategy element in the DSP  
3 calling upon you to take a symmetrical approach to  
4 supply and demand resources, is there?

5 MR. SHALABY: A. Can you elaborate what  
6 you mean by symmetrical approach?

7 Q. Treat them the same.

8 THE CHAIRMAN: I am sorry, I'm not quite  
9 sure I follow myself. What do you mean, treat what the  
10 same?

11 MR. D. POCH: Supply options and demand  
12 reducing options.

13 THE CHAIRMAN: Treat them the same in  
14 what fashion?

15 MR. D. POCH: In how they evaluate them,  
16 how they obtain them.

17 MR. SHALABY: I think we are indicating  
18 that demand is given priority. That immediately says  
19 that on exactly the same, demand gets a little edge  
20 over supply.

21 There are also the premiums that are  
22 given to demand management options that have recently  
23 been introduced and we discussed that. So, again,  
24 there is a little bit of difference here. The nature  
25 of the options differ. It is such a general question,

1 that I could benefit from a little bit of focusing,  
2 if --

3 MR. D. POCH: Q. Well, I guess the most  
4 obvious, your acquisition strategy, partly because of  
5 the nature of the resources, differs dramatically.

6 MR. SHALABY: A. You are supporting my  
7 view that things are different, right?

8 Q. I'm acknowledging things are  
9 different.

10 A. Yes.

11 Q. And one of the -- your plan doesn't  
12 call for symmetry in the way you acquire these  
13 resources. You go out and you buy the nuclear plant,  
14 you then charge your customers for it you don't go out  
15 and buy the conservation, at least fully, and charge  
16 your customers for it, fair?

17 A. The part of conservation that we buy,  
18 we do charge our customers for.

19 Q. Yes.

20 MR. BURKE: A. Just to add on the last  
21 point, the reason we couldn't really do that is that we  
22 are talking about the incremental costs in most cases.  
23 So that while we would buy our customer the efficiency  
24 improvement features in a refrigerator, we are not  
25 going to buy them the whole refrigerator.

1                   Q. Fair enough. I can amend the  
2 statement. You don't go out and buy the full  
3 incremental differential of economically attainable  
4 conservation potential.

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...

1 [4:05 p.m.] MR. SHALABY: A. Even that as a general  
2 statement isn't entirely holding. Because as Ms.  
3 Fraser indicated, there are programs where we go and  
4 buy the entire incremental cost.

5 Q. Yes, some cases you do.

6 A. Some cases we do.

7 Q. But, in general, you don't.

8 A. I accept that, yes.

9 Q. Would you agree that it is generally  
10 desirable to, where the circumstances permit, be  
11 symmetrical in your treatment of electric supply and  
12 conservation options? That's desirable in terms of  
13 least cost planning?

14 A. Desirable in that it promotes least  
15 electricity service, is that it?

16 Q. Least cost planning, yes.

17 A. Would you then advocate not giving  
18 priority to demand management and not giving premiums  
19 to demand management?

20 Q. I think all we would advocate is  
21 equal treatment of environmental impacts, how that  
22 works into it. Whatever you do weigh and however you  
23 do weigh things, that you should do so even-handedly.

24 A. It's a question that sort of is  
25 really so broad that nobody will object to being



1 even-handed.

2 Q. Nobody objects to being balanced  
3 either, Mr. Shalaby. (laughter)

4 A. That's right. But the idea, you  
5 fully recognize the differences between the nature of  
6 the demand options and supply options. Being  
7 even-handed doesn't necessarily mean being exactly  
8 similar or the same.

9 Q. All right. You do indicate that  
10 there are some barriers to going out there on the  
11 conservation side, and I noticed, for example, and we  
12 have produced this in Volume 2 at page 44, Exhibit 270,  
13 page 44. The example I saw there was just before  
14 Section 3.9.3, it says:

15 If incentives are too high or  
16 inappropriately applied, undesirable  
17 distortions in the marketplace could  
18 occur. For example, large incentives for  
19 R2000 homes could increase the  
20 penetration of electrically-heated homes  
21 in the areas served by natural gas  
22 thereby increasing electricity rather  
23 than decreasing it.

24 So, can we take it from that that if we  
25 want to go after all the economic potential for

1 conservation, we need to exercise some caution in your  
2 view?

3 A. Yes.

4 Q. And for that particular example,  
5 would you agree that there usually, and in this case,  
6 are ways of avoiding such problems, this kind of a  
7 backfire effect, and they might be, for example,  
8 constraints on eligibility in programs, in the R2000  
9 case you might say grants are only available where gas  
10 isn't.

11 MS. FRASER: A. That's exactly what we  
12 do, but that doesn't get at all the electric homes that  
13 are built in gas areas.

14 Q. Right. And there might be others  
15 ways which we could get more of that potential, and  
16 what I would like to suggest to you is that you could  
17 go to a coordinated approach with other utilities. If  
18 the same incentive was being offered to go to R2000 by  
19 both Hydro and the gas utilities, regardless of heating  
20 form, then there would be no reason that people would  
21 be induced by that to go electric in particular.

22 A. I think that would be wonderful.

23 Q. Let's look at that question of  
24 coordinated delivery. Let's start by analogy. In  
25 principle 3, your strategy 3.4.1, which appears in the

1 evidence, you say that the planning implementation of  
2 demand management options will be undertaken with close  
3 cooperation with the municipal utilities.

4 Is it fair to say that without  
5 coordination with municipal utilities, you would be  
6 able to attain much less of the potential induced EEI  
7 than you plan to?

8 A. Yes, I believe so.

9 Q. And you also say in 3.4.2,  
10 information on demand management programs will be  
11 exchanged with the federal and provincial governments.

12 First of all, I have to ask, why doesn't  
13 it say that you will plan and implement demand  
14 management options in close cooperation with the  
15 federal and provincial governments like it does with  
16 respect to municipal utilities? Is that just a  
17 slip-up?

18 A. I guess it's more of a perception  
19 that the municipal utilities are closer to the  
20 customer, the first line of contact as I indicated in  
21 my direct evidence, than the federal or provincial  
22 government is. And I believe when we do surveys of  
23 sources of information preferred by people in Ontario,  
24 I believe the utilities come out a little higher than  
25 the government.

1 But I think it is just more a matter of  
2 the way we look towards the customer through the  
3 municipal utilities as the federal and provincial  
4 governments are standing behind us.

5 Q. Would you feel it appropriate to read  
6 in then a new element that says you should develop such  
7 strategies and deliver programs where appropriate in a  
8 coordinated fashion with government programs.

9 A. We certainly are doing that in a  
10 coordinated fashion with government programs. The  
11 street lighting pilot I talked about earlier was a  
12 joint program with the Ministry of Energy. The  
13 Ministry of Energy also runs a industrial audit  
14 program. We coordinate our activities with them. I  
15 talked in detail about the audits that we are actually  
16 doing for the federal and provincial government  
17 buildings and we are working through those strategies  
18 in terms of what is essentially their own in-house  
19 programs with them.

20 So, I think there is a fair bit of  
21 cooperation, more so with the provincial than the  
22 federal because in the last little while the federal  
23 government has sort of reduced its program emphasis.

24 Q. I wanted to ask you about that and  
25 maybe I will take the opportunity now. What was

1 included in the plan for government sector  
2 conservation?

3 A. In terms of the penetration that we  
4 would get within offices?

5 Q. Sure.

6 A. I believe I also spoke to to this  
7 Thursday in discussions with Ms. Couban. That at the  
8 time the estimates that I made with respect to the  
9 commercial sector, the original estimates were done at  
10 the time when we could not give cheques to either  
11 Receiver General of Canada or the Treasurer of Ontario.  
12 Since that rule has been relaxed, there has been some  
13 re-estimation of penetration on balance, though.  
14 Actually the more we found out, that went down below  
15 the commercial sector. However, if we got some sort of  
16 firm commitment on either a total basis or a  
17 building-by-building or project-by-project kind of  
18 basis, with respect to say 100 per cent conversion in  
19 their buildings, I would see something different.

20 Right now I estimate that between the  
21 federal and provincial government together, they would  
22 probably account for somewhere between 15 and 20 per  
23 cent of the commercial floor space in the province, and  
24 yet if you look at, say, their participation in our  
25 savings by design program, they account for about 1.8



1 per cent of the applications. In our lighting program  
2 it's probably even less.

3 Q. So, in fact, that consistent you are  
4 telling me with what you had expected. That in fact --

5 A. It's been harder than what I  
6 expected.

7 We expected that they would -- because  
8 they are obviously in business forever, that they would  
9 deal with things and look at things in the long term,  
10 you know, long-term discounted cash flow, the same way  
11 we would. Obviously that's not the case.

12 With the federal government project we  
13 initially started looking at everything in our audits  
14 that had a 10-year payback or less for them. And even  
15 with that, it still averaged out about 2.8 years for  
16 the pilot that we did with the Energy, Mines and  
17 Resources with respect to their 59 buildings in Ottawa.

18 In our initial discussion with the  
19 provincial government, they only wanted to look at  
20 things with a 5-year payback or less. When we  
21 explained to them that even looking at our 10 year we  
22 averaged out at 2.8, they agreed then to look at 10  
23 year.

24 But it's not necessarily as easy as  
25 dealing with some of the developers who are where they

1 are, or building managers. —

2 Q. Profit motive is not there to be  
3 harnessed.

4 A. And where the profit gets to is  
5 certainly closer to the centre of the decision-making  
6 than in government situations.

7 Q. Yes. You spoke also about split  
8 incentives, I understood that. Could you tell me then  
9 what your assumed attainment rate is in that sector,  
10 the public building sector?

11 A. Actually, the way we split is up,  
12 it's broken up by offices, and so there would be a  
13 little bit of public sector in each, so it's sort of  
14 sprinkled through, so I haven't done it...

15 Q. Do you have it for one of the larger  
16 ones, for example, public sector offices?

17 A. We haven't broken it down. What we  
18 did was looked at offices generally and what we thought  
19 we could get, looking at, okay, some of this -- we,  
20 quite frankly, have not looked at it in that detail.

21 Q. What is the numbers for offices  
22 generally then?

23 A. I believe that's in Exhibit 76. I  
24 will look it up for you.

25 For existing offices we are looking at

1 about 40 per cent penetration averaging over the 10  
2 years. So, that's getting up probably around 60 per  
3 cent by the time we get to the end of the decade.

4 Q. And I take it that you had assumed  
5 the government would be just as good as anybody else  
6 when you made those estimates?

7 A. First of all, we assumed they would  
8 be better because we were going to give them  
9 incentives, so once we backed that off and...

10 Q. And so you were probably assuming 50  
11 per cent or some such number?

12 A. In the ball park, sure.

13 Q. Good enough.

14 Principle 3.13 says that Hydro identify  
15 other barriers to increase deficiency and work with  
16 other parties as appropriate towards reduction or  
17 elimination of such barriers. Would this be one such  
18 example?

19 A. That's one good example. That and  
20 the non-profit housing that I talked about the other  
21 day in terms of the maximum unit price.

22 Q. And I take it in both cases, if you  
23 agreed to pay for the incremental costs totally, you  
24 would get past those barriers?

25 A. Well, in actual fact, with respect to

1 the federal government, it's not just as simple as  
2 saying we will pay for it. We are having to get  
3 involved in their decisions about what is a good  
4 technology to go with, and those sort of decisions get  
5 quite complex.

6 You are probably going to get tired of  
7 hearing me sing the virtues of T8 lights, but Energy,  
8 Mines and Resources policy people agree with us with  
9 respect to the value of T8 lighting. When we get down  
10 and start talking to the public works people who  
11 actually have to write the specs for things that have  
12 to be done, they are more interested in putting in  
13 products like fluorescent power reducers which actually  
14 reduce light levels.

15 And so it's sorting through those sorts  
16 of barriers in terms of the technical, either both  
17 understanding, appreciation, the reliability, they are  
18 comfortable with the status quo, and those sorts of  
19 things. So, it's not just the financial aspects, even  
20 in the case where you have got two willing groups  
21 sitting down at a table talking.

22 Q. I take it, though, that the financial  
23 aspect, given the discussion you said you had with them  
24 about paybacks was certainly one of the barriers even  
25 in the government sector?

1 A. Yes.

2 Q. And would one of the barriers to  
3 realizing economic energy efficiency improvement be the  
4 cost of administering demand management programs  
5 themselves? These costs can be significant?

6 Let me back up.

7 A. Significant compared to what?

8 Q. Let me back up and say, when you do  
9 the total customer cost test, you include an assumption  
10 of what the delivery and OM&A costs, these are real  
11 costs that you will have to incur, you include those in  
12 there, do you not?

13 A. We include the incremental ones,  
14 that's right.

15 Q. I think we will get to this later,  
16 but generally, you have been assuming numbers around  
17 \$350. In the plan you assume \$350 a kilowatt and you  
18 have refined that now to 320 and 420 depending which  
19 sector?

20 A. Yes. But I point out that when we  
21 actually do a particular program design, we look more  
22 specifically at the incremental cost for that  
23 particular program.

24 Q. Yes. But when you were planning,  
25 when you were doing the plan and you were making --

1 A. It's a ballpark.

2 Q. You had to make an assumption when  
3 you did your economic potential screening and you made  
4 your first estimates of what is going to be attainable  
5 so that the system planners could go ahead and see what  
6 the gap was, you assumed it was about 350--

7 A. Yes, we did.

8 Q. --a kilowatt. In effect, that's the  
9 number that was used at the time when you struck the  
10 2,000 for 2000?

11 A. Yes, that was the number that ended  
12 up in the 1989 demand management plan.

13 Q. And that's not an insignificant  
14 amount.

15 Mr. Shalaby, maybe you could help us  
16 here. I don't know what kinds of dollars those are, if  
17 they are levelized or net present value or what, but on  
18 an equivalent basis, the capital cost of a nuclear  
19 plant, I take it, would only be three or four times  
20 that.

21 MR. SHALABY: A. Compared to the demand  
22 management?

23 Q. Just the \$350 a kilowatt we have  
24 heard for OM&A?

25 A. You are in the right ballpark, yes.



1 MS. FRASER: A. I might point out that  
2 at that time the \$350 of OM&A was treated as OM&A. We  
3 have now, as we discussed yesterday, refined the way in  
4 which we capitalize and treat those costs.

5 So, it's not all pure admin. dollars in  
6 there. It might be advertising, which are part of the  
7 delivery to increase awareness and so on and so forth.

8 Q. To be fair then, that number is about  
9 non-capital costs, that is costs that aren't for the  
10 measure itself, the piece of equipment?

11 A. That's right. When the \$350 number  
12 was struck, that was for everything except incentives.  
13 At that point only incentives were being capitalized,  
14 so OM&A at that point included everything else.

15 Now we would look at it in a bit  
16 different way. We look at it a bit more holistically,  
17 I guess.

18 Q. But that 350 doesn't include the  
19 actual amount you are contributing or the customer is  
20 contributing to pay for the smart light bulb?

21 A. Exactly.

22 Q. We will come back to this a little  
23 later.

24 Suppose that you had a measure that by  
25 itself would provide cost effective savings if you only

1 count the installation costs of the measures, if you  
2 forget about the administrative costs, and that if you  
3 have to have a separate standalone delivery program to  
4 reach the customer and get that measure installed, in  
5 some cases that could overwhelm the net benefits of the  
6 measure itself. Given the scale of OM&A costs we have  
7 been talking about, I take it that's not inconceivable?  
8 You have to say yes for the record, or no.

9 A. Okay. Yes.

10 Q. So, in that case, if you had to  
11 deliver it through that route, that would amount to a  
12 barrier, a standalone program to achieve the  
13 installation, the cost of that program, that is the  
14 OM&A cost of that program, could constitute a barrier  
15 to increased deficiency even though the cost of the  
16 technical measure in turning the wrench or whatever you  
17 have to do to it, might be cheaper than the supply  
18 option?

19 A. Yes, but we are only talking at a  
20 hypothetical point here. We haven't had any programs  
21 in terms of the way we have designed them that have  
22 failed the total customer cost test.

23 I guess I would point out that we have  
24 had some projects under what was then thermal cool  
25 storage which is now subsumed under savings by design,

1 that purely because of the fact that the customer was  
2 fed from the 115 kV line, that the costs and benefits  
3 were a little different than the average thermal cool  
4 storage project, and we went ahead with that project  
5 even though if we had added in the administration costs  
6 that would not have passed.

7 Q. Isn't it possible that as we get into  
8 sort of second generation programs, as technologies  
9 emerge, the dimmable ballast, I don't know what it  
10 costs, whatever, that's a year-and-a-half away, there  
11 is going to be some on the margin at any given point in  
12 time?

13 A. We certainly hope that that's one of  
14 the impacts of our demand management programs, is they  
15 bring a lot more new technologies down the pipeline.

16 Q. It seems to me there is a number of  
17 possible scenarios here when we get into the realm of  
18 cooperating with other utilities. For example, it's  
19 conceivable we could have a lighting efficiency  
20 measure, a retrofit measure, in homes that are gas  
21 heated, and they have gas water heating, and the  
22 measure itself is cost effective but too small in  
23 itself to support a delivery program of actually going  
24 into that house because there is nothing in it for  
25 Ontario Hydro in terms of while in your there sealing

1 the cracks or anything else, you would be conserving  
2 gas. But it's nevertheless possible that the kinds of  
3 things you would do if, it had been an electrically  
4 heated home to seal up and to insulate water jackets on  
5 the water tank, what have you, might be cost effective  
6 compared to avoided gas costs. Does that sound  
7 plausible?

...

1 [4:28 p.m.] A. I assume you could do the same kind  
2 of analysis with them and ours.

3 Q. Yes. And it just seemed to me that  
4 in such cases, if you combined the gas and electric  
5 savings, and you combined the delivery of the measures,  
6 when you sent somebody that house they do both, you  
7 could obtain some savings that wouldn't otherwise be  
8 particularly cost effective because of the otherwise  
9 heightened delivery costs of separate delivery, and you  
10 told us these costs can be significant?

11 A. Yes, I was speaking only  
12 hypothetically, because we haven't done analysis on  
13 that basis, that seems to make intuitive sense to me.

14 Q. The same could be true, for example,  
15 if we brought in a water utility, municipal corporation  
16 providing water or separate water utility. It might be  
17 that they'd be happy to have you go in and make sure  
18 airators and showerheads are installed in every faucet  
19 and shower.

20 A. As a matter of fact, some of our  
21 local customer energy services offices are working with  
22 local water supply authorities in order just to do just  
23 that. They are taking the showerheads from our program  
24 and putting them in.

25 Q. So, there are savings there for the

1 water delivery systems and the water treatment and  
2 sewage treatment and so on, which aren't captured in  
3 your total customer cost test as some kind of a  
4 benefit, for example.

5 A. Correct.

6 Q. And we could magnify those savings to  
7 the extent that a coordinated approach with water  
8 utilities and gas utilities and so on could get this  
9 economy of scale and delivery, could reduce the OM&A  
10 per unit of energy?

11 A. Again, not having done the analysis,  
12 but intuitively I would agree with the direction.

13 Q. I take it that in developing the  
14 plan, you haven't, when the plan was set, 2000 for  
15 2000, the world had not yet progressed to the point  
16 where you could plan on that kind of an approach.

17 A. That's correct. And similarly, we  
18 went into program design. One of the things that we  
19 had to, at the time, include in savings by design was  
20 that fuel switching or gas substitution was not an  
21 option.

22 We certainly, at that time, raised those  
23 sorts of questions with the Ministry of Energy, and,  
24 you know, in terms of appropriate fuel choice policies.

25 Q. Can you refer, in our background



1 materials, Volume 1, to page 102? This is a memo which  
2 was provided as part of the PCRD from Vickie Sharp,  
3 Manager of Program Testing and Analysis, Program  
4 Support and Services Division, which I take it is part  
5 of the energy management branch.

6 A. Yes.

7 Q. It is March '91, pretty recent. And  
8 it is talking about a water heater tune up initiative,  
9 and it refers to an alternative that allows for higher  
10 participation amongst gas heated customers requesting  
11 the home visit tune up. And it says:

12 "This alternative is cost effective  
13 under the total customer cost test--"

14 Excuse me, I'm just looking for my cite  
15 here.

16 "--and it results in higher total  
17 demand reduction compared to the previous  
18 alternative. The absolute net benefits  
19 are \$27-million lower."

20 And it talks about the cost of  
21 walk-through audits for gas heated homes is not cost  
22 effective for the measures installed. Have I got that  
23 right?

24 MS. MITCHELL: A. Yes.

25 Q. It goes on to say:

1 "A program design limiting their  
2 participation--"

3 and I take it that means of gas heated homes.

4 A. Correct.

5 Q. "--will result in a better overall  
6 net benefit and an alternative program  
7 designed for installing these measures in  
8 gas homes would be more cost effective."

9 Now, doesn't this establish that Hydro  
10 only looks, first of all, that Hydro only looks at the  
11 savings in gas-heated homes from the standpoint of  
12 electricity savings?

13 A. Correct.

14 Q. And so--

15 A. At the time this program was  
16 considered.

17 Q. Right. And in March '91 the gas  
18 savings potential really had no value in the total  
19 customer cost test.

20 A. Correct.

21 Q. And in this case, the high program  
22 delivery cost of electricity savings measures in the  
23 gas heated homes was buried.

24 A. I am sorry, I didn't catch the  
25 beginning of it.

1 Q. The high program delivery costs of  
2 electricity saving measures in the gas-heated homes was  
3 buried.

4 A. Correct.

5 Q. Just the kind of thing we were  
6 talking about hypothetically before.

7 If you could turn with me to page 71 of  
8 this same exhibit, this is also taken from the PCRD,  
9 part 2, Volume 1, and it is from the description of the  
10 home tune-up packages. I want to make sure I  
11 understand this.

12 "Installing electric energy  
13 efficiency measures in gas heated  
14 homes--"  
15 which if you look at the bottom, there is in capitals,  
16 "GAS SPACE AND WATER HEATING HOMES COSTS  
17 \$60 PER HOME."

18 A. That's correct.

19 Q. "--and installing water heating  
20 conservation measures," and this is at  
21 the top of the page, "is a cost per home  
22 of \$120."

23 That's in an electric water-heated home.  
24 And that the difference, there is some extra measures  
25 that add \$60 to the cost of treating. In other words,

1 you are doing what you were doing for \$60 in the  
2 gas-heated home, but you are doing some more, and the  
3 total package is \$120.

4 A. Correct.

5 Q. I take it that is an indication that  
6 the more limited installation list for the gas-heated  
7 home indicates that the -- that Hydro has decided that  
8 the extra \$60 of measures, the difference between that  
9 approach and the one taken where you've got the  
10 electric water heating, aren't economically justified,  
11 because of course, you are only looking at electricity  
12 conservation as a justification.

13 A. That's correct. That's correct. We  
14 are only doing those gas homes on a reactive basis.

15 Q. Let's explore the coordinated  
16 approach, which Vickie Sharp, her memo suggests is  
17 needed. Would one idea be for Hydro not to treat the  
18 gas heated homes, and instead reimburse gas utilities  
19 for installing electric efficiency measures?

20 A. Yes, that's an idea.

21 Q. And the opposite is true, too, you  
22 could seek reimbursement from the gas utilities and do  
23 the full package?

24 A. I suppose so.

25 Q. Again, water utilities might have an

1 interest in this?

2 A. Yes.

3 Q. I don't think I need to take you to  
4 the excerpts we have provided, but in the materials,  
5 and Ms. Fraser, you may be familiar with this, there is  
6 the example of the United Illuminating's Homeworks  
7 Program's in the States, where they got third parties,  
8 I think in that case nonprofit organizations, to go in  
9 and get all three utilities to pay for it. Are you  
10 familiar with that approach?

11 MS. FRASER: A. I am not, no. I  
12 concentrate on the commercial stuff.

13 Q. I am sorry, absolutely right. I just  
14 remembered you had been in Boston at the conference.

15 Ms. Mitchell, are you familiar with that?

16 MS. MITCHELL: A. I'm somewhat familiar.

17 Q. You agree that it's an option that  
18 might be attractive and workable, given the competitive  
19 nature of utilities?

20 A. Yes, I agree that is an option.

21 MR. BURKE: A. I just have one thing to  
22 observe about the discussion, Mr. Poch. That is that  
23 at this point the gas utilities don't have an incentive  
24 to conserve particularly, and so while hypothetically  
25 we can discuss all of these options, in practice at

1 this point I'm not sure we could negotiate directly  
2 with the gas companies and find them interested in  
3 spending money on reducing the demand for the sale of  
4 their product.

5 Q. Mr. Burke, are you aware that the  
6 Ontario Energy Board, I think, is intending, if they  
7 aren't already, holding hearings? They are going to  
8 hold a generic hearing on least cost planning and  
9 providing gas companies with incentives to basically a  
10 means of earning a return on investments in  
11 conservation?

12 A. I'm aware that such a hearing is  
13 planned, but it's a long way from actually changing the  
14 rules by which the gas companies work.

15 Q. All right, fair enough. Would you  
16 agree that, though, such an approach would be entirely  
17 consistent with the policy stance of the current  
18 government as you understand it?

19 A. It would. But there is a difference  
20 in the sense that Ontario Hydro is owned, in a sense,  
21 by the public and the gas companies are not.

22 Q. And they are regulated, are they not?

23 A. Yes.

24 Q. We are talking 25-year planning  
25 horizon here. Do you think it is not appropriate to



1 look ahead at these kinds of opportunities and try to  
2 encourage them, and plan on some likelihood of them  
3 coming to be?

4 A. I think it is very appropriate for  
5 the government to do that.

6 Q. Are you aware that I think two  
7 members of this Board are members of the Ontario Energy  
8 Board?

9 A. I wasn't aware of that, no.

10 THE CHAIRMAN: I'm not aware of it,  
11 either.

12 MR. D. POCH: Perhaps it is only one. I  
13 think perhaps only one, then. I'd understood there had  
14 been a cross appointment and that was a purposeful act,  
15 Mr. Chairman, but I guess it hasn't been taughted  
16 particularly.

17 THE CHAIRMAN: Just so it is clear, I  
18 think one member is a member of the OEB.

19 MR. D. POCH: Yes.

20 Q. So, Mr. Burke from that I take it we  
21 can presume the government would hope to attain its  
22 policy objectives and utilize all the avenues available  
23 to it, and that is an appropriate basis for planning?

24 MR. BURKE: A. I'm not sure. I think it  
25 is a judgment someone will have to make. Whether it is

1 an appropriate basis for planning, all I wanted to say  
2 is that your examples were hypothetical at this point.  
3 And that whether they are realized in future is yet to  
4 be determined.

5 Q. All right. That seems to be -- I  
6 hear that a lot. We heard it with dimmable ballasts,  
7 they are not on the shelf at the electric supply yet,  
8 so they are not in your plan. I take it that that is  
9 the basis for the plan you have presented, that you are  
10 trying to deal with sort of more concrete realities,  
11 and you are trying not -- you are trying to avoid, with  
12 exceptions, speculating on what is to come?

13 A. Well, in my direct I talked about the  
14 issue of new technologies and how we treat them,  
15 because it is not really possible to get a  
16 comprehensive handle on what the total impact of all  
17 new technologies will be in future. And so we take a  
18 snapshot as it stands today, and we try not to  
19 speculate. You are right. It doesn't mean that we  
20 have never heard of these technologies or we don't know  
21 they are coming. It is just that when we take our  
22 snapshot five years from now, it is not necessarily the  
23 only thing that is going to be different five years  
24 from now.

25 So, we are trying to be as concrete as we

1 can with the information we have today and we use  
2 trends in technology in the basic load forecast to  
3 capture some of these broad trends, without trying to  
4 be too specific, because I think if we try to base our  
5 forecasts on all of the new technologies we can  
6 identify, we are sure to miss lots of new technologies,  
7 which will affect the load forecast, primary or basic,  
8 and it is not clear in what direction.

9 Q. Mr. Burke, you have just told me you  
10 know about some of these technologies coming down the  
11 pipe. So you are saying it is better to ignore that  
12 knowledge for fear you might have some kind of a biased  
13 sample?

14 A. Effectively, yes.

15 Q. All right. Would you, just going  
16 back to our coordinated delivery approach, would you  
17 agree that to the extent we can coordinate programs  
18 with other utilities, go into a house once and put in  
19 the gas conservation and the electric conservation, and  
20 indeed the water conservation measures, that would tend  
21 to reduce societal costs overall?

22  
23  
24  
25 ...

1 [4:45 p.m.] MS. MITCHELL: A. Yes. I would agree  
2 with this, and I think that we have demonstrated that  
3 we have considered this as evidenced by the Espanola  
4 project and home tune-up project which I referred to in  
5 my direct evidence which has been put on hold until the  
6 fuel-switching options have been resolved.

7 Q. I am not necessarily suggesting you  
8 are not ready, willing and able to do this; I am just  
9 trying to examine the options that we should be sure  
10 and capture when are looking at ultimately what numbers  
11 to use for planning purposes for attainable and  
12 potential.

13 MS. FRASER: A. I might also point out  
14 that I have made the suggestion to the Ministry of  
15 Energy staff with respect to what could be called the  
16 fungability of energy saving credits between utilities.  
17 They duly wrote it down; however, even in their  
18 consultation meetings that they had in June at Glennin  
19 College (phoen.), I didn't see much evidence of that  
20 kind of thinking back and forth. At this point I don't  
21 think it's something that we can base our plans on.

22 Q. And indeed, the benefits of  
23 coordinated delivery, they don't depend on the  
24 hypothetical case of it not being cost effective for  
25 you or the gas utility, even where it's cost effective,

1 all the programs you do, all the measures you would  
2 install would be cost effective just on an electricity  
3 basis and all the gas measured would be cost effective  
4 just for them and cost effective covering delivery  
5 cost, there is nevertheless a societal benefit in  
6 reducing those costs with a coordinated approach?

7 A. I would say so.

8 Q. And that would free up resources, if  
9 nothing else, to go deeper, if we can.

10 A. Yes, I think so.

11 Q. I would like to move on to what in  
12 the outline is part 3 of our cross-examination of  
13 principles, and let's talk about the general strategic  
14 principles first of all.

15 If you could turn up in the Balance of  
16 Power, the appendix, A, strategy elements 1.7 and 8,  
17 which are -- excuse me, I will find the cite.

18 I'm sorry, I am reading my notes wrong.  
19 It's 1.7 and 1.8, not element 7 and 8, and it is at  
20 page A2.

21 I take it that you have got two sets of  
22 criteria here, primary criteria which must be met, and  
23 we use these for evaluating and developing recommended  
24 plans, and that's in 1.7, and include environmental  
25 requirements and standards, and secondary criteria,



1 which will be considered and which may influence  
2 recommended plans, and that includes environmental  
3 characteristics and public safety characteristics, and  
4 so on.

5 And by the way, it does note, I can't  
6 resist observing, in developing plans the secondary  
7 criteria will be quantified to the degree practical.

8 But as between 1.7 and 1.8, this  
9 two-tiered system, what does this hierarchy imply if an  
10 option is, say, cheaper in dollars and therefore  
11 consistent with low costs of power, which is a primary  
12 consideration, but it's worse on environmental  
13 performance and public safety, would it win over a more  
14 expensive but cleaner and safer option? Can anybody  
15 help me with that?

16 MR. SHALABY: A. I think this is where  
17 the trade-offs and the judgments and the considerations  
18 that are discussed in more detail in Chapter 15 come  
19 in. I assume we will get into that more once we have  
20 seen all the options, have seen all the pros and cons  
21 and the trade-offs can be made more fully at that time.

22 Q. Perhaps we can narrow this then at  
23 point and talk about this distinction between  
24 environmental requirements and standards on the one  
25 hand, mandatory, and environmental characteristics in



1 the secondary area criteria. Could you just explain  
2 that to me?

3 A. I would like maybe to take you to the  
4 origin of why some criteria were called primary and  
5 some were called secondary.

6 I believe in the draft demand/supply  
7 strategy, those criteria were all one together. And as  
8 a result of feedback that we received from people who  
9 participated in the review, people said -- and I am  
10 reading from page 91 of Exhibit 73, there were inputs  
11 to the -- meaning prioritize or tell us what you weigh  
12 more than others. And in response to that request,  
13 Hydro categorized the criteria into two groups, some  
14 that must be met category, the primary, and the other  
15 ones were secondary. So, that is how they came about.  
16 We had them at one lump and people asked to assign  
17 priority to them and that's what we have done.

18 Now, to come back to your question, what  
19 is the difference between environmental requirements  
20 and standards and environmental characteristics. It is  
21 plainly what you just mentioned, meeting the law is a  
22 must, improving on the law is desirable.

23 Q. All right. Can I refer you to  
24 Exhibit 74, page 30. Exhibit 74 is the DSPS Report,  
25 666 D SP.

1                   You obviously had no Biblical scholars  
2                   who were warning you against that particular choice of  
3                   numbers.

4                   A.   What page?

5                   Q.   Page 30.   And I would like to read  
6                   you the second paragraph, which says:

7                               Consistent with the leadership role,  
8                               Ontario Hydro's safety and environmental  
9                               standards often exceed regulatory  
10                              requirements.   In such cases, Ontario  
11                              Hydro's standards are considered as a  
12                              primary criteria that must be met.

13                             So, can I take it, then, when it comes to  
14                             standards, it's a matter of choice.   It's not  
15                             mandatory; it's a choice that Hydro makes what to adopt  
16                             as a standard, and if you adopt it as a standard it  
17                             becomes mandatory.

18                            A.   To our operating staff and to our  
19                            operating personnel, the standards are requirements  
20                            that they must meet, yes.

21                            Q.   Right.   And you would agree that  
22                            Hydro exercises some choice in what it determines is a  
23                            standard.   We are not talking about regulations here,  
24                            we are talking about things that Hydro escalates to the  
25                            status of a standard?

1 A. Yes.

2 Q. So, in interpreting even that list as  
3 we see it now, the secondary and the primary list,  
4 there is some exercise of judgment?

5 A. There is judgment all over this  
6 place, yes.

7 Q. And I take it, if you don't happen to  
8 exercise the judgment that way, then the minimum  
9 requirements in the law are the ones that take place,  
10 residual impacts aren't costed and so aren't counted in  
11 avoided cost and used to help screen in or out DSM?

12 A. Yes.

13 Q. All right. Could I refer you to  
14 Exhibit 73, which is the large multi-part exhibit, part  
15 C. And I am just trying to find my page, if you can  
16 give me a minute.

17 I will have to come back to that, Mr.  
18 Chairman, I have lost my cite.

19 How do you give weight to the  
20 environmental elements or factors which don't happen to  
21 have been escalated and ensconced into avoided cost by  
22 reason of it being categorized as standards? How do  
23 you weight those factors in determining the level of  
24 DSM in the plan?

25 A. I am trying to think of an example

1 of... What could an example of that be? How can you  
2 escalate what? I am sorry, I can't visualize what it  
3 is you are asking me about.

4 Q. Well, is there anywhere where you  
5 have done an analysis to support perhaps more DSM based  
6 on the environmental benefits, other than where you  
7 have sort of automatically done that by virtue of  
8 including standards and regulations in your avoided  
9 cost?

10 A. We have added a 10 per cent premium  
11 that we talked about in Panel 3.

12 Q. You have added that for non-utility  
13 generation too, though, have you not?

14 A. That's right.

15 Q. That's not any kind of analysis which  
16 looks at actual environmental impacts and tries to  
17 adjust for that; is it?

18 A. In part. We talked about that at  
19 great length. In part, it recognizes the environmental  
20 benefits of those options, but not a great analysis in  
21 great detail.

22 Q. There is no analysis offered in  
23 support of that suggestion; is there?

24 A. Not an environmentally detailed  
25 analysis, no.

1 Q. Okay. I did find the quote I wanted  
2 to refer to before, it's in part C of Exhibit 73, at  
3 page 110. Actually, Mr. Argue found it for me. And  
4 this is Ontario Hydro's report of what the Ministry of  
5 Environment said to, I guess, the -- it says the  
6 committee, I assume that's the Select Committee, and  
7 the Ministry of Environment as reported by you as  
8 having said at 3.09, Section 1.14:

9 Ontario Hydro has recognized in the  
10 DSPS that there are currently regulations  
11 in place to protect environmental  
12 parameters and that these regulations  
13 will be adhered to. The regulations,  
14 however, provide the maximum limits for  
15 pollutants in the environment, and  
16 Ontario Hydro has a responsibility to  
17 minimizing environmental damage.

18 Do you think that DSM beyond merely  
19 economic DSM, is one way that you could honour that  
20 responsibility?

21 A. If you had one objective, that would  
22 be a way of achieving it, yes.

23  
24  
25 ...



1 [4:48 p.m.] Q. So, it depends on the priority you  
2 place on the strategy elements and these various  
3 competing needs and responsibilities, we could have a  
4 different DSM plan, an alternative plan if we change  
5 the priorities.

6 A. Yes.

7 Q. All right. And if we have  
8 alternative DSM plans, which you have agreed you  
9 haven't provided us with, isn't the corollary of that  
10 that automatically it would mean you would have  
11 produced alternative supply plans?

12 A. If you have different demand  
13 management amounts, you will have different supply  
14 plans, yes.

15 MR. D. POCH: Mr. Chairman, I'm about to  
16 change topics.

17 THE CHAIRMAN: All right, we will adjourn  
18 until tomorrow morning at 10:00.

19  
20

21 ---Whereupon the hearing was adjourned at 5:00 p.m. to  
22 be reconvened on Tuesday, August 27, 1991, at 10:00  
a.m.

23  
24

25 JAS/RT [c. copyright 1985]





